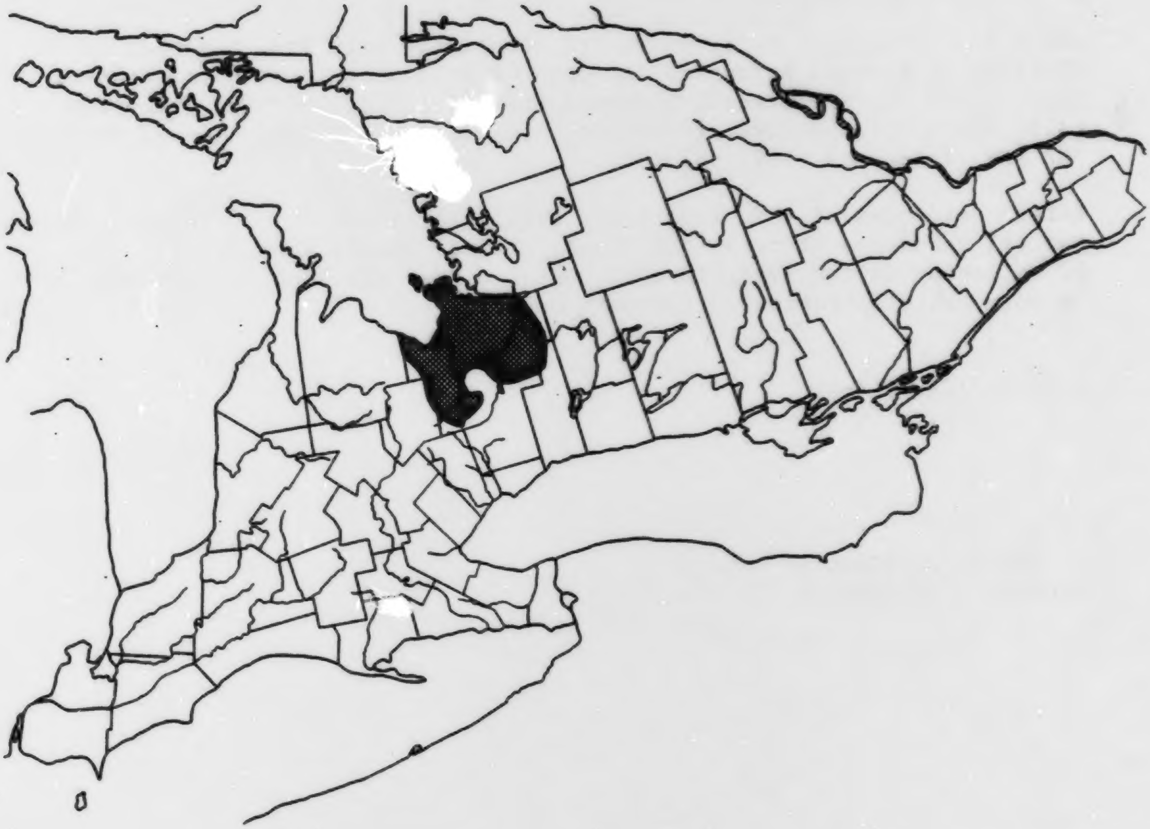
OFER 8409

LIFE SCIENCE AREAS OF NATURAL AND SCIENTIFIC INTEREST IN SITE DISTRICT 6-6

A Review and Assessment of Significant Natural Areas in Site District 6-6

September 1984



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The full citation for this report is:

Hanna, R. 1984. Life Science Areas of Natural and Scientific Interest in Site District 6-6: A Review and Assessment of Significant Natural Areas in Site District 6-6. Parks and Recreational Areas Section, Ontario Ministry of Natural Resources, Central Region, Richmond Hill, Ontario. viii + 81 pp. + folded map, illus.

For convenience, this report may be referred to as OFER 8409. It is one of a number of Open File Ecological Reports comprised of reconnaissance surveys and inventories of ecological areas in Ontario.

Additional copies of this report are obtainable only from the Ontario Ministry of Natural Resources through the following locations: Central Region, 10670 Yonge Street, Richmond Hill, Ontario, L4C 3C9, Telephone (416) 884-9203; Southwestern Region, 1106 Dearness Drive, London, Ontario, N6E 1N9, Telephone (519) 681-5350.

Reference copies of this report are available in the above offices, and the Natural Resources Library, 4th Floor, Whitney Block, Room 4540, 99 Wellesley Street West, Toronto, Ontario M7A 1W3. Copies have been sent to university libraries in Southern Ontario.

ISBN 0-7743-9517-6

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Printed in Ontario

* Effective October 1, 1984

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PREFACE

In 1977, the Parks and Recreational Areas Programme of the Ontario Ministry of Natural Resources, with special funding approved by Management Board of Cabinet, initiated a provincial survey of natural areas in connection with park system planning. A parallel initiative focused on the identification of geological sites representative of Ontario's earth science diversity. The mandate for these surveys stem from the protection objective of the Ontario Provincial Parks Policy (1978), which is "to protect provincially significant elements of the natural and cultural landscapes of Ontario."

The overall objective of the natural areas survey is to identify a series of ecological areas that comprise the spectrum of natural landscapes, environments and biotic communities in Ontario. This objective issues from a Cabinet endorsed guideline of the 1978 parks policy which recognizes the role of provincial parks in protecting "a system of features representative of Ontario's life science history and diversity". With this aim, technical guidelines help to direct the selection, documentation and evaluation of natural areas throughout the site regions and site districts of the province.

Between 1980 and 1982, evaluations of remnant natural areas were undertaken in the site districts within the Central and Southwestern Regions of the Ministry. Through these assessments, the finest natural areas were chosen to complement natural features already represented within a series of Nature Reserves proposed through an earlier review of the provincial parks and park reserves (Lindsay and Hanna, 1980). In addition, natural areas identified through this survey complement the Candidate Nature Reserves already proposed for the Niagara Escarpment Planning Area (Parks Planning Branch, 1976).

The present report was issued as a draft in 1981 under the title *An Identification and Evaluation of Life Science Candidate Nature Reserves in Site District 6-6*. Now in the final edition, it is one of a series of such reports which have been completed to date and are available as 'Open File Ecological Reports'. The findings of these reports have provided the basis for many of the 'Recommended Provincial Parks' announced by the Minister in June 1983, and the 'Areas of Natural and Scientific Interest' designated in the District Land Use Guidelines also released at that time.

Although evolution of the land use planning process since 1981 has produced new terminology incorporating natural areas, this nomenclature is not used in this report. Rather, natural areas are referred to as either Candidate Nature Reserves or as Significant Sites. This is distinct from the new terminology, as used in the District Land Use Guidelines (OMNR, 1983), which groups natural areas and geological sites as Areas of Natural and Scientific Interest (ANSIs).

According to the District Land Use Guidelines, ANSIs may vary in level of significance. The most significant of these, those referred to as Candidate Nature Reserves in this report make the greatest contribution to the Ministry's protection objective and are listed in the District Land Use Guidelines. ANSIs which contribute to a lesser degree to the provincial protection objective are referred to as Significant Sites in this report and are considered to be at least regionally significant. The policy statement for Areas of Natural and Scientific Interest is appended.

Site district evaluations in the Central and Southwestern Regions of the Ministry were carried out by three biologists — K.M. Lindsay, R. Hanna and R. Klinkenberg. Lindsay coordinated and directed the work, and evaluated Site Districts 6-5, 6-7 and 7-2. Hanna examined Site Districts 6-1, 6-6, 6-8, 6-13, 7-4, and 7-6; Klinkenberg examined Site Districts 7-1 and 6-1. While all three biologists shared common objectives and collaborated in developing evaluation techniques, each undertook field work and evaluation using methods appropriate to their respective site districts.

Each site district report includes an analysis and discussion of the natural features and natural areas of the site district, a discussion of the methodology, recommendations for further work and possible methods of natural areas protection. Check-sheets for Candidate Nature Reserves are appended, as are brief descriptions of other natural areas in the site district.

The information collected during the site district assessments forms the foundation of a provincial natural areas data base. This data base is being updated as new information is obtained. It is an important component for the planning process at district, regional and provincial levels of the Ministry. Readers are invited to add to the data base, either by contributing to studies conducted by the Ministry, or through information contributed to other groups seeking to protect natural areas.

Although site district assessments were designed to identify those natural areas which contribute mainly to the protection objective of the Ministry, this information should prove useful to regional and local governments, conservation authorities and other organizations involved with the identification and protection of significant natural areas. Protection of natural areas may be achieved in several ways, including the purchase of sites by outside agencies. Where natural areas designated as ANSIs occur on public lands managed by the Ministry, it will ensure that the land uses and activities which occur, provide for the protection of identified values. On private lands, the Ministry will, through cooperation with others, attempt to ensure that landowners are aware of the significant features on their properties and seek the owners' cooperation in protecting such features.

ACKNOWLEDGEMENTS

Many people contributed to the preparation of the site district reports. H. J. Featherston, H. Pronk, J. Griffin and G. Rodgers (Parks and Recreational Areas Section, Central Region, OMNR) played a major role in the administration of this project, providing continual and much appreciated logistic and technical support. G. Murphy and E. Martelle (Parks and Recreational Areas Section, Southwestern Region) also contributed substantially to this project. Technical direction for the project came from an informal committee composed of the Parks Coordinators of both regions, H. J. Featherston, G. Murphy and E. Martelle; the Regional Park Planners, G. Rodgers, W. McNab and I. Seddon; and T. J. Beechey (Life Science Coordinator, Parks and Recreational Areas Branch, Queen's Park). Discussions on technical matters with T. J. Beechey, W. McNab and G. Rodgers proved especially valuable. This report was prepared under contract to J. E. Hanna Associates Inc.; the Ontario Ministry of Natural Resources, however, undertook all aspects associated with report production.

Throughout the course of this project K. Lindsay provided regular direction, encouragement and advice. P. Terpstra's assistance with background research, data analysis, map preparation, field work and report editing has been invaluable. L. Sajnovic supervised report typing with proficiency and looked after many other details.

The author would like to thank several individuals who contributed specifically to the preparation of the Site District 6-6 report. E. Hanna (J. E. Hanna Associates Inc.) discussed freely the method of site selection, provided information on specific sites and commented on drafts of this report. His ideas and support are appreciated and are reflected in the context of this report. Both A. A. Reznicek (Assistant Curator, University of Michigan Herbarium) and R. S. W. Bobbette (Freelance Consultant), expert botanists on the flora of Simcoe County, contributed valuable information on important sites in the site district.

The draft Site District 6-6 report was reviewed by selected experts familiar with the geographical area under study in Site District 6-6. The comments made by R. Bobbette, W. Cattley, A. Reznicek, F. Westman and B. Whittam are appreciated and have been added to the data base for ANSIs at district and regional offices and the main office of the Ministry. These reviews generally confirmed the selection of ANSIs made by this site district study.

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1. Candidate Nature Reserves and Significant Sites in Site District 6-6 east of the Niagara Escarpment Planning Area

SUMMARY

Lying between Nottawasaga Bay and Lake Simcoe, south to Alliston and north to the Penetang Peninsula, Site District 6-6 is dominated by a series of 64 m high sand and till islands bordered by shorecliffs, beaches, dunes and boundary terraces. The majority of the site district is utilized for agricultural activities. Mixed farming is practised on the uplands while the lowlands support cash crops on the sand plains and market gardening in the reclaimed portion of the Holland Marsh. Nottawasaga Bay, especially Wasaga Beach and Lake Simcoe, support intense summer recreational usage, Site District 6-6 contains some of the largest natural areas remaining in the Southwest and Central Regions of the Ontario Ministry of Natural Resources; extensive woodlands and wetlands are found in the Penetang Peninsula and lowlying basins, respectively. Included in the study area is the city of Barrie, the major towns of Orillia, Alliston and Stayner, the Canadian Forces Base Borden and the Christian Islands Indian Reserve.

An overview of the physiographic regions and component landforms within the site district exclusive of the Niagara Escarpment Planning Area[1] suggested that the only vegetation-landform features which currently remain in a relatively undisturbed natural state are: upland sand plain/till plain with shorecliff, kame hills, swamp, marsh, bog/lake, shoreline beach ridges/dunes, sand plain lowland and river valley system. Eleven candidate nature reserves, including two provincial parks and two park reserves, were selected to represent the major vegetation-landform features of the study area. They are as follows:

UPLANDS	
Sand Plain/Till Plain with Shorecliff	Giants Tomb Island Park Reserve (41A/16 785725) Awenda Provincial Park Proposed Nature Reserve Zones (31D/13 820650) Fergusonvale North (31D/12 935345)
Kame Hills	Rugby West (31D/12 170350)
WETLANDS	
Swamp	Minesing Swamp (31D/5 900150) Duclos Point Park Reserve and adjacent lands (31D/6 400100)
Marsh	Matchedash Bay (31D/12 060545)
Bog/Lake	Macey Lake Bog (41A/16 785625)
SHORELINE	
Beach Ridges/Dunes	Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands (41A/8 780270)
LOWLANDS	
Sand Plain	The Pinery (31D/4 915860)
River Valley System	Nottawasaga River (31D/4 940985)

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[1] An assessment of natural areas in the Niagara Escarpment Planning Area had been conducted (Park Planning Branch, 1976), thus this study included only Site District 6-6 east of the Niagara Escarpment Planning Area.

All eleven candidate nature reserves are recommended for protection. Five of the eleven are highlighted because of their outstanding contribution: Giants Tomb Island Park Reserve, Awenda Provincial Park Proposed Nature Reserve Zones, Minesing Swamp, Mitchedash Bay and Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands.

1. INTRODUCTION

Site District 6-6, a part of Site Region 6, abuts the Niagara Escarpment and the southern edge of the Precambrian shield. It extends just east of Lake Simcoe and follows the shoreline south to the Schomberg Clay Plain (Figure 1). In addition to Lake Simcoe, are found several smaller lakes - Lake Couchiching, Bass Lake, Orr Lake, Little Lake, Farlain Lake and Marl Lake - and the Nottawasaga River which discharges into Nottawasaga Bay.

A small portion of Site District 6-6 falls within the Niagara Escarpment Planning Area (Figure 2). This portion of Site District 6-6 was excluded from the study area because a comprehensive study of significant natural areas within the Niagara Escarpment Planning Area was already available (Park Planning Branch, 1976).

A site region is defined as an area of land within which the response of the vegetation to the features of the landform follows a consistent pattern (Hills, 1959). Site Region 6 is described as a gently to rolling terrain of ice laid materials of lacustrine deposits with little relief and limestone plains shallowly overlain by drift are restricted to several sites. Normal mesic, normal dry and hot dry sites (as defined by Hills, 1959) are characterized by sugar maple/beech/hemlock, sugar maple/oak, ash and oak/ash respectively. Hemlock, yellow birch, spruce and white cedar occur on wet sites.

Each site region is further subdivided according to characteristic physiographic zones which set apart fairly large areas; these Hills called site districts. Site District 6-6 is one of the fifteen site districts in Site Region 6. It is described as an area of water-laid clay, silt and sand broken by ridges of loam and sandy loam.

The categorizations and boundaries proposed by Hills do not coincide precisely with those of other authors. In particular, Chapman and Putnam (1973) recognize two distinct phsyiographic regions, namely the Simcoe Lowlands, most of which is in the site district, and the Simcoe Uplands, all of which is included. The Simcoe Uplands region in the centre of the site district divides the Simcoe Lowlands into two major divisions. The Nottawasaga basin, drained by the Nottawasaga River, comprises the western division and the Lake Simcoe basin the eastern. Shorecliffs, beaches, dunes and bouldery terraces border these lowlying lakeplains. Rising 65 m above these lake plains are a series of broad curved sand and till ridges separated by steep-sided flat-floored valleys and encircled by numerous shorelines; the Simcoe Uplands. These uplands were once islands in glacial Lake Algonquin. Additionally, small portions of three other physiographic regions occur in the study area - the Horseshoe Moraines, Peterborough Drumlin Field and Oak Ridges Moraine.

Table 1 presents an analysis of the landscape of the study area and its remaining natural features. The physiographic regions that lie within the site district are listed in order of importance. For each physiographic region, component landforms are given, based on Chapman and Putnam, 1972. As well, the percentage and types of natural areas remaining is estimated based on a review of the 1:50,000 topograhic maps covering the site district.

Following the overview of the study area, 20 percent was found to be in a relatively natural and undisturbed state. The most common remnant natural features are upland sand plain/till plain with shorecliff, kame hills, swamp, marsh, bog/lake, shoreline beach ridges/dunes, sand plain lowland and river valley system.

Most of these features are represented by parks and park reserves with nature reserve potential. However, some features are missing, while others require additional areal representation. Consequently, a nature reserve site selection program was undertaken to identify additional sites which would provide representation of the dominant vegetation-landform features. The methodology of the natural area overview, identification of features not represented by parks, site selection procedure and brief discussion of the results and recommended sites follow.

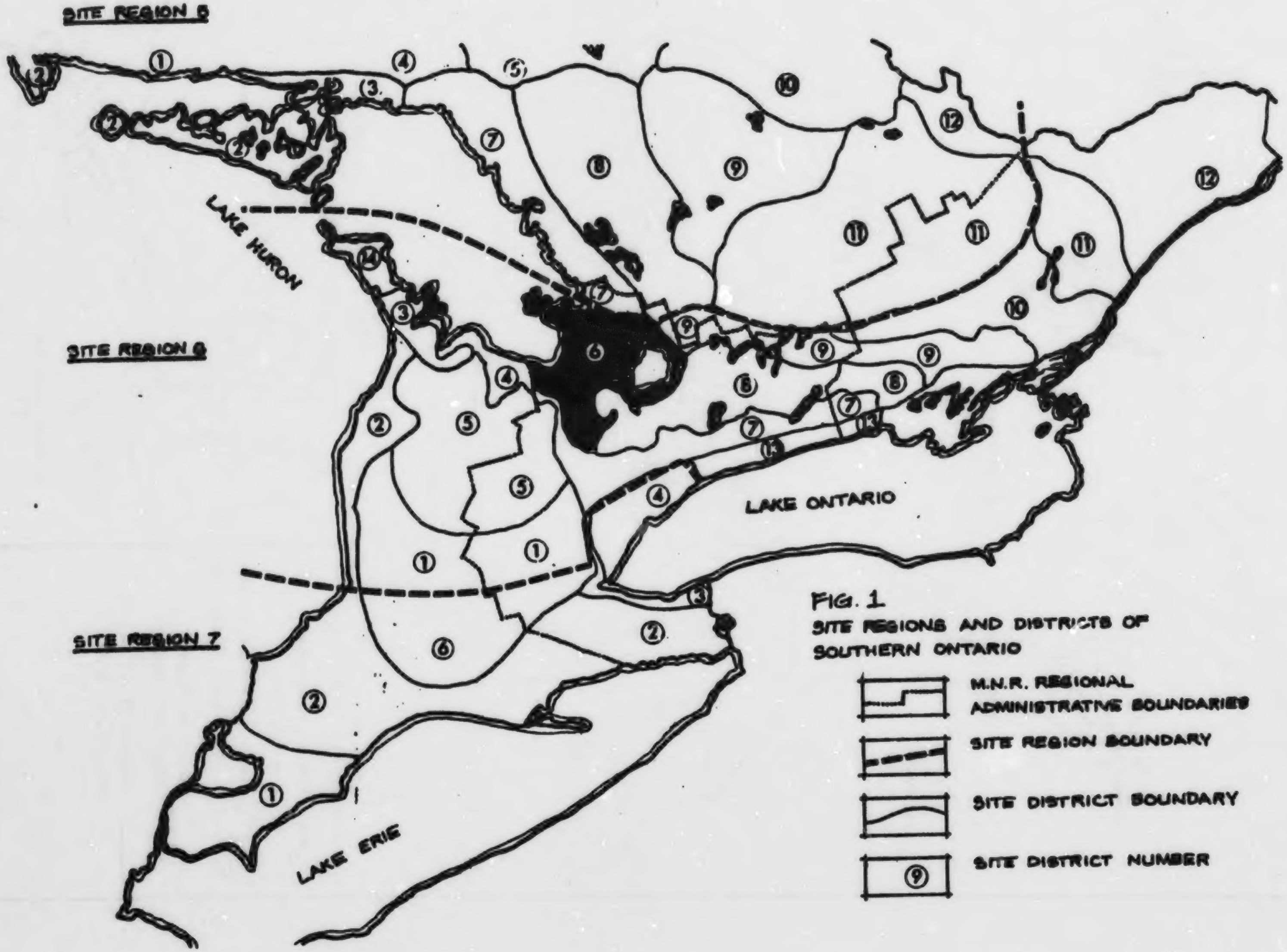

FIG. 1
SITE REGIONS AND DISTRICTS OF SOUTHERN ONTARIO

Figure 2. Site District 6-6 Relative to the Niagara Escarpment Planning Area

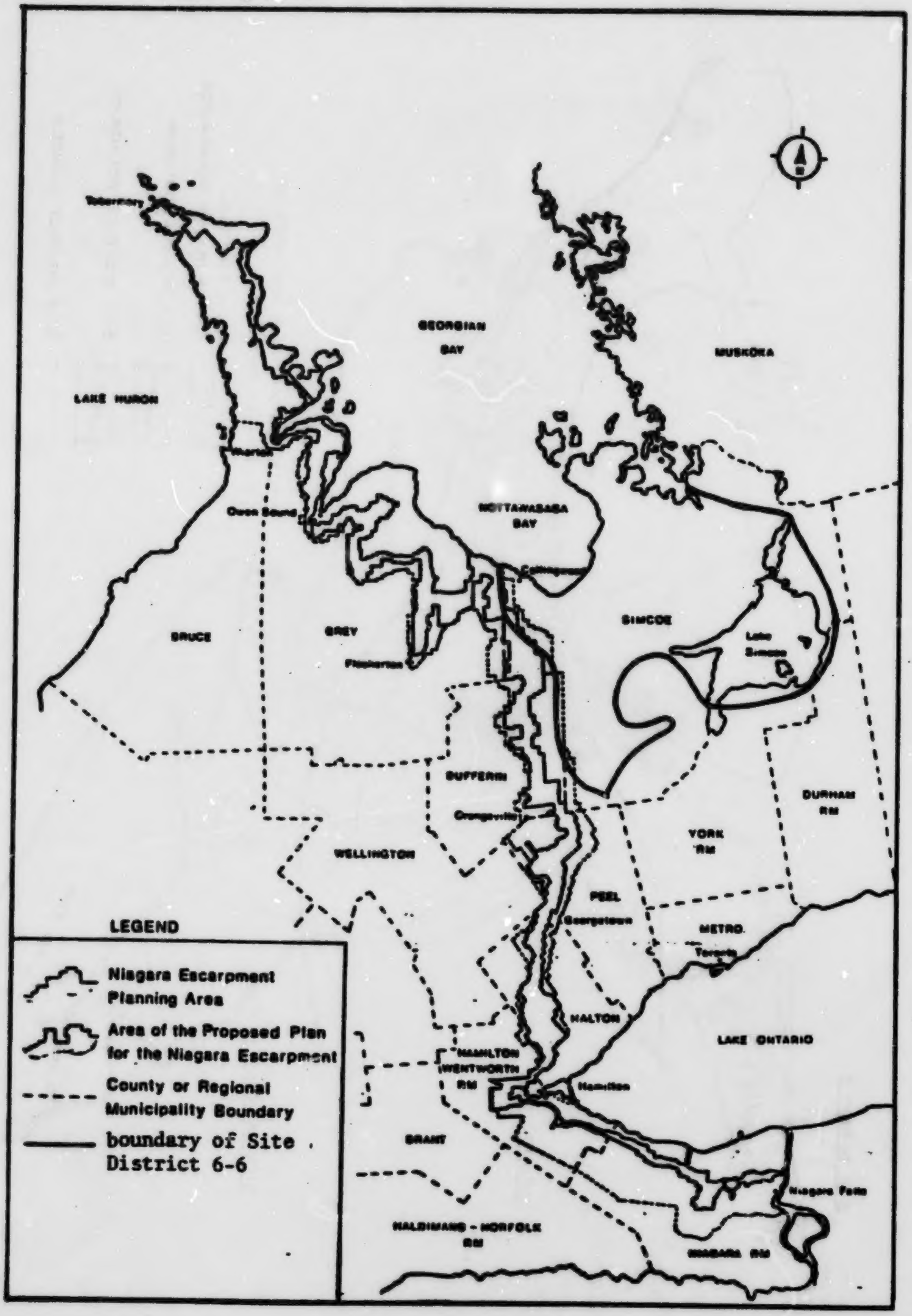

TABLE 1. SUMMARY OF THE NATURAL FEATURES ANALYSIS AND NATURE RESERVE SELECTION PROCEDURE BY PHYSIOGRAPHIC REGION AND LANDFORM FOR SITE DISTRICT 6-6 EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

ANALYSIS OF NATURAL FEATURES OF SITE DISTRICT					FEATURES REPRESENTED BY CANDIDATE NATURE RESERVES IN PROVINCIAL PARKS/RESERVES			FEATURES MISSING FROM PROVINCIAL PARKS AND PARK RESERVES	CANDIDATE NATURE RESERVES SELECTED TO REPRESENT THE MISSING FEATURES
Physiographic Regions wholly or partly within Site District	Proportion of Site District covered by Physiographic Region	Landforms found within Physiographic Region	Proportion of Physiographic Region occupied by each Landform	Types of Natural Features remaining on these Landforms and proportion remaining in a Natural Condition	Park Name	Feature(s)	Approx. Area		
Simcoe Lowlands (also in 6-8, 6-9)	55	sand plain with beaches, dunes, shorecliffs and boulder pavement	55	-20% -Camp Borden Woodlands -Nottawasaga River -some shorelines -most dunes developed except at Wasaga -some wetlands remainder farmed	Wasaga Beach Provincial Park Proposed Nature Reserve Zone	-raised beaches; dunes (mixed dec. - con. beaches; red pine-white pine-red oak dunes; heath low dunes; prairie grassland)	413 ha (1030 acres)	-additional raised beaches -sand plain lowland woods	-Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands (41A/8 780270) -The Pinery (31D/4 895900) -Nottawasaga River (31D/4 940985)
		clay plain with some drumlins	20	-5% -mainly farmed -Marl Lake and Jack Lake wetlands -some woodlots	-	-	-	-wetlands	-
		bevelled till plain	10	-1% -mainly farmed -some scattered woodlots	-	-	-	-uplands	-
		organics	10	-75% -some drained for agriculture or development -Minesing, Bass Lake, Copeland	Duclos Point Park Reserve	-beach bar; lakefront marsh; swamp (balsam poplar - willow beach bar;	95 ha (238 acres)	-wetlands (swamp, fen, marsh, bottomlands)	-Duclos Point Park Reserve and adjacent lands (31D/6 400100) -Minesing Swamp (31D/5 900150) -Matchedash Bay (31D/12 060545)

TABLE 1. SUMMARY OF THE NATURAL FEATURES ANALYSIS AND NATURE RESERVE SELECTION PROCEDURE
BY PHYSIOGRAPHIC REGION AND LANDFORM FOR SITE DISTRICT 6-6
EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

ANALYSIS OF NATURAL FEATURES OF SITE DISTRICT					FEATURES REPRESENTED BY CANDIDATE NATURE RESERVES IN PROVINCIAL PARKS/RESERVES			FEATURES MISSING FROM PROVINCIAL PARKS AND PARK RESERVES	CANDIDATE NATURE RESERVES SELECTED TO REPRESENT THE MISSING FEATURES
Physiographic Regions wholly or partly within Site District	Proportion of Site District covered by Physiographic Region	Landforms found within Physiographic Region	Proportion of Physiographic Region occupied by each Landform	Types of Natural Features remaining on these Landforms and proportion remaining in a Natural Condition	Park Name	Feature(s)	Approx. Area		
Simcoe Lowlands cont'd	55	organics	10		Duclos Point Park Reserve cont'd	cattail-bulrush marsh; alder, silver maple, cedar, tamarack swamp)			
		till moraine	5	-2% -mainly farmed -few woodlots NW of Minesing	-	-	-	-uplands	-
Simcoe Uplands	35	sand plain with beaches, shorecliffs and boulder pavement	40	-20-50% -large woodland areas and some raised beaches, shorecliffs in Penetang Peninsula	Awenda Provincial Park Proposed Nature Reserve Zones Giants Tomb Island Park Reserve	-uplands, lowlands and shorecliff with shorecliff fen and small bog -terrace, bluff and beach (sugar maple-beech terrace and bluff; oak-pine savannah; dunes and sand beach complex)	450 ha (1000 acres) 540 ha (1351 acres)	-additional sand plain with shorecliff	-Fergusonvale North (31D/12 935345) -Minesing Swamp (31D/5 910150)

TABLE 1. SUMMARY OF THE NATURAL FEATURES ANALYSIS AND NATURE RESERVE SELECTION PROCEDURE
BY PHYSIOGRAPHIC REGION AND LANDFORM FOR SITE DISTRICT 6-6
EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

ANALYSIS OF NATURAL FEATURES OF SITE DISTRICT					FEATURES REPRESENTED BY CANDIDATE NATURE RESERVES IN PROVINCIAL PARKS/RESERVES			FEATURES MISSING FROM PROVINCIAL PARKS AND PARK RESERVES	CANDIDATE NATURE RESERVES SELECTED TO REPRESENT THE MISSING FEATURES
Physiographic Regions wholly or partly within Site District	Proportion of Site District covered by Physiographic Region	Landforms found within Physiographic Region	Proportion of Physiographic Region occupied by each Landform	Types of Natural Features remaining on these Landforms and proportion remaining in a Natural Condition	Park Name	Feature(s)	Approx. Area		
Simcoe Uplands cont'd	35	drumlinized till plain	40	-20% -mainly farmed -numerous scattered tiny woodlots	Giants Tomb Island Park Reserve	-terrace, bluff and beach (sugar maple-beech terrace and bluff; oak-pine savannah; dunes and sand beach complex)	540 ha (1351 acres)	-upland woodland	-Fergusonvale North (31D/12 935345)
		kame moraine	15	-50% -hilltop woodlots -remainder farmed	-	-	-	-kame hills	-Rugby West (31D/12 170350)
		organics	5	-80% -some drained; others managed	-	-	-	-bog/lake	-Macey Lake Bog (41A/16 785625)
Peterborough Drumlin Field (also in 6-8, 6-7 and 6-9)	8	drumlinized till plain	80	- 1% -farmed	-	-	-	-	-
		spillway	10	-50% -upland forest tract	-	-	-	-uplands	-
		sand plain	10	- 1% -farmed	-	-	-	-	-

TABLE 1. SUMMARY OF THE NATURAL FEATURES ANALYSIS AND NATURE RESERVE SELECTION PROCEDURE
BY PHYSIOGRAPHIC REGION AND LANDFORM FOR SITE DISTRICT 6-6
EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

ANALYSIS OF NATURAL FEATURES OF SITE DISTRICT					FEATURES REPRESENTED BY CANDIDATE NATURE RESERVES IN PROVINCIAL PARKS/RESERVES			FEATURES MISSING FROM PROVINCIAL PARKS AND PARK RESERVES	CANDIDATE NATURE RESERVES SELECTED TO REPRESENT THE MISSING FEATURES
Physiographic Regions wholly or partly within Site District	Proportion of Site District covered by Physiographic Region	Landforms found within Physiographic Region	Proportion of Physiographic Region occupied by each Landform	Types of Natural Features remaining on these Landforms and proportion remaining in % Natural Condition	Park Name	Feature(s)	Approx. Area		
Horseshoe Moraines (also in 7-2, 7-6, 6-1)	1	till moraine	50	- 1% -cleared for ski resorts, orchards	-	-	-	-	-
		spillway	40	-30% -lowlying areas	-	-	-	-wetlands	-
		undrumlinized till plain	10	-10% -few lowlying areas	-	-	-	-	-
Oak Ridges Moraine (majority in 6-7)	1	spillway	60	-20% -upland forest	-	-	-	-uplands	-
		kame moraine	40	-0% -cleared	-	-	-	-	-

2. METHODOLOGY

The following section outlines the four steps undertaken during the natural area overview and site selection procedure.

(i) Natural Area Analysis

The Protection Objective of Ontario's Provincial Park Policy is "to protect provincially significant elements of the natural and cultural landscape of Ontario". Following an assessment by site district of the life science features with nature reserve potential in the Parks System, it was necessary to determine which features were not represented by Parks and which features would need to be included to meet the protection objective of this policy.

Site districts, as defined by Hills, served as the sole basis for identification and selecting vegetation-landform features which needed to be represented in the Parks System to preserve the diversity of landscape types present. However, the physiographic regions proposed by Chapman and Putnam were also considered primarily at the overview stage, step (i). By segregating the site district in this way, the identification of the full spectrum of features needing to be represented was facilitated. Throughout the text of this report, reference is made to these physiographic regions, however, site selection was based entirely on the analysis of the dominant vegetation-landform features of the site district irrespective of their association with the physiographic regions. Reference to these physiographic regions is intended simply to allow the reader to orient and compare the sites selected according to the system proposed by Chapman and Putnam.

Topographic (N.T.S. 1:50,000) and physiographic (Chapman and Putnam, 1972, 1:253,440) maps were used to estimate the percentage of the study area with each physiographic region. Within each sector of the physiographic region in the study area, the areal frequency of the various vegetation-landform features were recorded. For each vegetation-landform feature , estimates of the percentage of the area remaining in a natural and undisturbed state were made and tabulated.

Features represented by Parks and those missing from the system were listed. Sections (ii) to (iv) of the Methodology outline the steps followed to document and select the best available examples of the dominant vegetation-landform features within the study area. Candidate nature reserves were chosen to represent the missing features identified through the natural features analysis. Table 2 tabulates the time spent on each step.

(ii) Review of Background Information

Existing information on file at the Ministry of Natural Resources, Central Region, Parks and Recreation Section was compiled according to physiographic regions and landforms by P. Terpstra. This information is presented in Appendix B. The major sources of information for the study area were the International Biological Program (IBP) survey sheets and the Ministry of Natural Resources internal reports and Sensitive Areas Files. Supplementary to this were Ministry of Natural Resources Environmental Data Cards and other government reports.

TABLE 2. TIME ALLOCATION FOR NATURAL FEATURES ANALYSIS AND NATURE RESERVE SELECTION PROCEDURE FOR SITE DISTRICT 6-6 EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

	STEP	DAYS
1.	Natural Features Analysis (overview of natural landscape of Site District 6-6 east of the Niagara Escarpment Planning Area and identification of life science features not represented by Parks)	5
2.	Review of Background Information (review of topographic maps, physiographic maps, airphotos and data; selection of sites for field checking)	5
3.	Field Reconnaissance (by automobile and foot)	4
4.	Site Evaluation (final review, comparison and evaluation of significant sites for candidate nature reserves; Environmental Data Card preparation and mapping)	6

Following the review of topographic and physiographic maps and the background data, representative life science sites with nature reserve potential were selected for detailed airphoto analysis. Where no information was available, sites were selected strictly from maps. The number of sites was reduced through airphoto analysis and a list was prepared for field investigation.

The following five criteria formed the basis for all phases of site selection and evaluation. Sites illustrating similar features were compared in terms of representation, diversity, condition, ecological considerations and special features.

(a) Representation - Representation of the remaining natural features of the site district was of primary importance. The dominant vegetation-landform features of the site district were given special emphasis.

(b) Diversity - Diversity was appraised in terms of the number and range of vegetation-landform features or habitats found within a site. The representation value of a site usually increases in proportion to the diversity of habitats contained within the site.

(c) Condition - The degree of past disturbance to the main feature(s) of the site was assessed. Logging, grazing, fire, drainage, flooding, mining, housing developments, transportation and utility corridors and recreation were some of the impacts that were considered. Because all of southern Ontario has been effected by human disturbance to varying degrees, none of the sites selected are pristine.

(d) Ecological Considerations - Ecological considerations such as size, shape, buffering from adjacent land use and watershed location were also weighed. Generally, larger sites, which would be more likely to maintain stable and diverse natural communities, were chosen over smaller sites. However, for certain life science features, only small remnant sites are left, especially in the extreme southern part of Ontario (Site Region 7). In such cases, sites that were close together or linked were ranked higher than widely spaced, small areas. Recent work on island biogeography (Diamond, 1975) suggests that species extinctions are less likely to occur in larger sites, linked sites or closely spaced sites than in small, isolated sites. Headwater areas and watershed units where some degree of control over inputs would be possible were given special attention.

(e) Special Features - Allowance was also made for special features such as the presence of rare and endangered species, species of phytogeographical interest (significant species), nesting sites for colonial birds such as heronries, and concentrations of breeding and/or migratory waterfowl. The special features criterion was of secondary importance; it was applied only after representation, diversity, condition and ecological considerations had been assessed. Because detailed and complete biological data was lacking for most sites, caution was exercised in comparing the special features of sites with different levels of background data.

(iii) Field Reconnaissance

During the compilation of natural areas information for this site district, a total of four days, September 17-18, 24-25, 1980, were spent field checking the study area; the field team consisted of the author and field assistant P. Terpstra. A pre-selected route was travelled by automobile and to a lesser extent by foot; during this period, forty-nine pre-selected sites were field checked. Each site was investigated for one half to two hours and included an examination of as many different biological communities and site types as time permitted. General topography, soil types, site drainage, vegetation communities, fauna, condition, surrounding landscape features and land use were noted and recorded.

(iv) Site Evaluation

Following field reconnaissance, each site was reviewed, compared and evaluated within its vegetation-landform unit. Poor quality sites were deleted and the remainder were denoted as significant sites (see Glossary).

Following further evaluation, candidate nature reserves (see Glossary) were selected from the list of significant sites. Representation, diversity, condition and ecological considerations were weighted equally in the evaluation procedure while special or unique features were considered less important. Land ownership was not considered throughout the evaluation process with the exception of Indian Reserve and Department of National Defense lands which are outlined on the 1:50,000 topographic maps. Significant sites on these federally-controlled lands were not recommended as candidate nature reserves, even if they contained the best quality of only known example of a major vegetation-landform feature in the site district. A further analysis of candidate nature reserves led to the identification of the best quality sites to represent each dominant vegetation-landform feature.

Environmental Data Cards for each significant site and one page nature reserve checksheets for each candidate site were prepared (Appendix A). Location and boundaries of each significant site and candidate nature reserve were mapped on 1:50,000 topographic maps and all data were placed on file at the Ministry of Natural Resources, Central Region, Parks and Recreation Section.

The preparation of this report involved the compilation of existing data on the natural areas of Site District 6-6. This data included available information on Environmentally Sensitive Areas in the site district, airphoto review, topographic map review, and some contact with individuals knowledgeable about the site district. A limited amount of time was devoted to field checking of sites in order to assess their current condition and the degree of representation offered by each.

The emphasis of this study was directed towards vegetation-landform features. Therefore, areas of high quality wildlife and fisheries habitat, and special sites such as concentrations of rare or endangered flora and fauna, are generally missing unless otherwise a component of a representative vegetation-landform feature.

3. CANDIDATE NATURE RESERVES

The preliminary overview process identified eight dominant vegetation-landform features remaining in a relatively natural undisturbed state, specifically: upland sand plain/till plain with shorecliff, kame hills, swamp, marsh, bog/lake, shoreline beach ridges/dunes, lowland sand plain and river valley system.

Table 1 summarizes the natural features analysis and nature reserve selection procedure according to physiographic region and vegetation-landform feature. The results of the analysis are presented in the final column entitled Candidate Nature Reserves Selected to Represent the Missing Features. Of the forty-nine areas initially selected, thirty-one were chosen as significant sites and of these, eleven as candidate nature reserves (Table 3). The locations of these eleven candidate nature reserves are shown on Figure 3.

Of the eleven candidate nature reserves selected, five offer the best representation of the dominant features. One of the best examples of relatively undisturbed, inaccessible and extensive upland forest is provided by Giants Tomb Island Park Reserve. The island also contains a high diversity of vegetation types and supports unusual plant species. The Nature Reserve Zones proposed for Awenda Provincial Park also provide a good example of relatively undisturbed upland and lowland forest together with a shoreline fen and small bog. As an extensive , provincially and nationally significant wetland complex, Minesing Swamp offers a high diversity of vegetation types: boreal fen and swamp, Carolinian levee forest and bottomlands, marsh and upland terrace (Bobbette and Maycock, 1976). Minesing is also important for its waterfowl staging area, large Great Blue Heron heronry (Hanna, 1973, Hanna and Hanna, 1979 a), flood storage capacity and flood control function. Numerous regionally rare birds and plants, eleven provincially rare (Argus and White, 1977) plants and four endangered birds (Goodwin, 1976) occur here. Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands include a provincially significant combination of raised beaches, foredunes and parabolic dunes, the largest and least disturbed in Ontario (Carlisle, Cuddy and Norman, 1972). It also contains good examples of dune succession and significant dune and prairie plant species. Finally, one of the largest cattail-sedge marshes in the site district is Matchedash Bay (Reznicek, 1972). Containing a variety of marshland, lowland and upland vegetation types and uncommon southern plant species, it also functions as an important migratory waterfowl stopover area.

The other six candidate nature reserves selected are: Fergusonvale North, Rugby West, Duclos Point Park Reserve and adjacent lands, Macey Lake Bog, The Pinery, and Nottawasaga River. Fergusonvale North is the third upland sand plain/till plain with shorecliff, candidate nature reserve chosen. Although more disturbed than Giants Tomb Island and Awenda, it also provides good representation of extensive upland forest typical of the site district. The best example of relatively undisturbed kame hills with upland woods is Rugby West. One of the few undisturbed lakefront wetland complexes on Lake Simcoe is Duclos Point Park Reserve and adjacent lands (Hanna, 1980). This site provides a good vegetation-landform progression from beach spit to backshore marsh, meadow, thickets and swamp. Duclos Point was selected as the second swamp candidate nature reserve because it contains lakefront sand bar and associated backshore marsh site types which Minesing Swamp lacks.

Despite its disturbed nature, Macey Lake Bog is a good example of classical bog succession and is relatively inaccessible. The Pinery represents one of the few remnant white pine forests on the Alliston Sand plain. A 15 km section along the Nottawasaga River north of Nicolston offers fair representation of the river valley vegetation types (floodplain, slope and adjoining uplands) typical of the study area, although better examples occur inside Canadian Forces Base Borden.

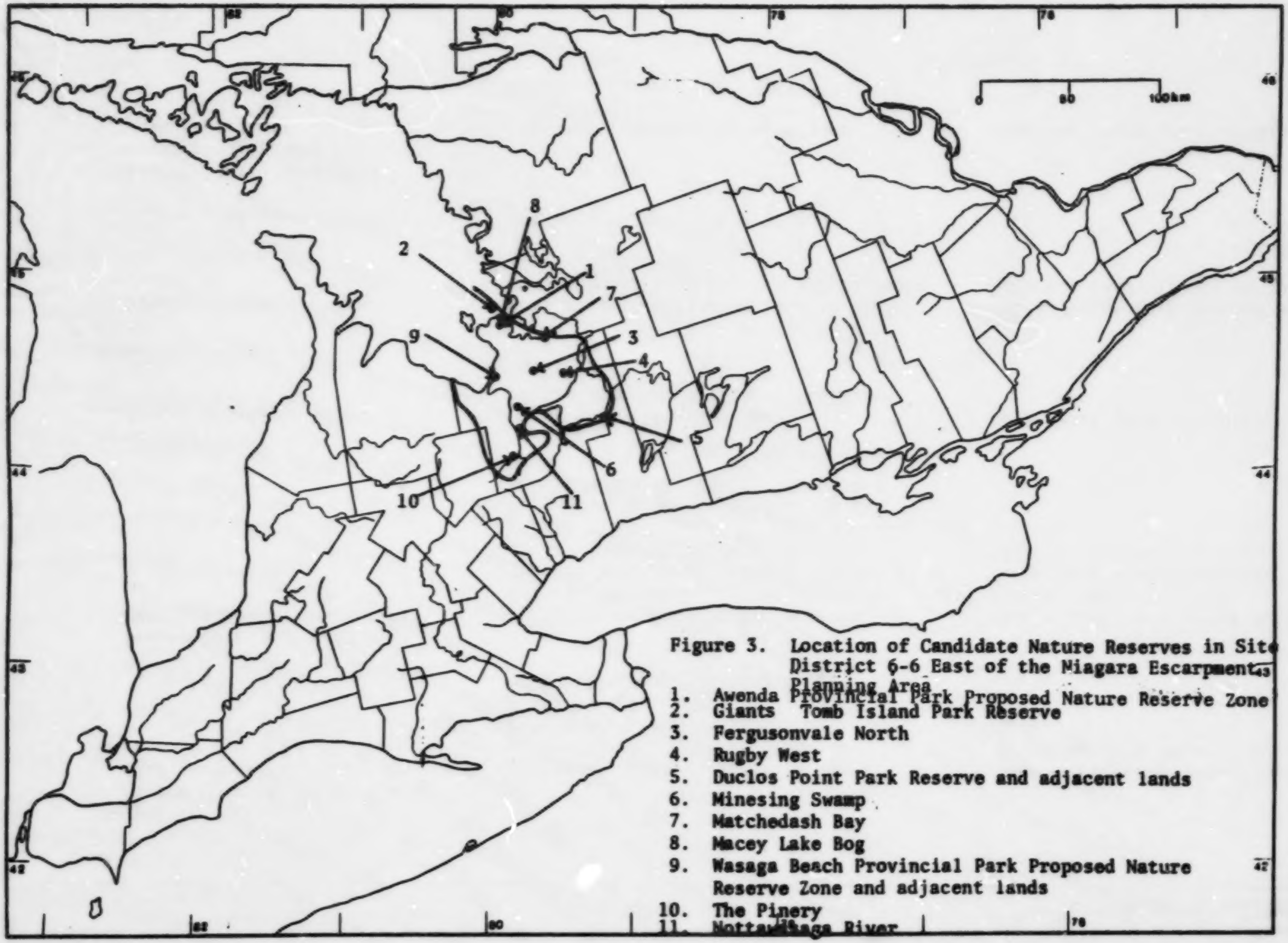

Figure 3. Location of Candidate Nature Reserves in Site District 6-6 East of the Niagara Escarpment Planning Area

1. Awenda Provincial Park Proposed Nature Reserve Zone
2. Giants Tomb Island Park Reserve
3. Fergusonvale North
4. Rugby West
5. Duclos Point Park Reserve and adjacent lands
6. Minesing Swamp
7. Matchedash Bay
8. Macey Lake Bog
9. Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands
10. The Pinery
11. Nottawasaga River

TABLE 3: LIST OF SIGNIFICANT SITES AND CANDIDATE NATURE RESERVES IN SITE DISTRICT 6-6 EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

VEGETATION-LANDFORM FEATURE AND PHYSIOGRAPHIC REGION	SIGNIFICANT SITE	CANDIDATE NATURE RESERVE
UPLANDS		
Sand Plain/Till Plain with Shorecliff		
Simcoe Uplands - sand plain with shorecliff	Christian Channel (41A/16 695610) Awenda Provincial Park Proposed Nature Reserve Zones (31D/13 820650) East of Awenda (31D/13 840660)	Awenda Provincial Park Proposed Nature Reserve Zones (31D/13 820650)
Simcoe Uplands - sand plain/ till plain with shorecliff	Christian Islands Indian Reserve (41A/16 630630) Thunder Beach West (41A/16 720620) Giants Tomb Island Park Reserve (41A/16 785725) Fergusonvale North (31D/12 935345) Moonstone Northeast (31D/12 065480)	Giants Tomb Island Park Reserve (41A/16 785725) Fergusonvale North (31D/12 (31D/12 935345)
Kame Hills		
Simcoe Uplands - kame	Rugby West (31D/12 170350) Martin Farm South (31D/12 115305)	Rugby West (31D/12 170350)
WETLANDS		
Swamp		
Simcoe Lowlands - organics	Bass Lake Park Reserve (31D/12 170380) Duclos Point Park Reserve and adjacent lands (31D/6 400100)	Duclos Point Park Reserve and adjacent lands (31D/6 400100)
Simcoe Lowlands - organics/clay	McGinnis Point (31D/11 370360)	
Simcoe Lowlands/Uplands - organics/clay/sand plain with shorecliff	Copeland Forest Management Area (31D/12 025345) Minesing Swamp (31D/5 900150)	Minesing Swamp (31D/5 900150)

TABLE 3: LIST OF SIGNIFICANT SITES AND CANDIDATE NATURE RESERVES IN SITE DISTRICT 6-6 EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

VEGETATION-LANDFORM FEATURE AND PHYSIOGRAPHIC REGION	SIGNIFICANT SITE	CANDIDATE NATURE RESERVE
WETLANDS		
Marsh		
Simcoe Lowlands - organics	Matchedash Bay (31D/12 060545)	Matchedash Bay (31D/12 060545)
Simcoe Lowlands - clay	Marl Lake (31D/12 805295)	
Simcoe Uplands - organics/ sand plain	Wye Marsh (31D/12 905520)	
Bog		
Simcoe Uplands - organics	Macey Lake Bog (31D/13 785625) Penetang Lake (31D/13 860600) Lolligan Lake (31D/12 835535)	Macey Lake Bog (31D/13 785625)
SHORELINE		
Beach Ridges/Dunes		
Simcoe Lowlands - sand plain with dunes, raised beaches, shorecliff	Tiny Beach (41A/16 705555) Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands (41A/8 780270) Thunder Bay (41A/16 750600) Ossossane Beach (31D/12 815460) Georgina Beach (31D/12 810420)	Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands (41A/8 780270)
LOWLANDS		
Sand Plain		
Simcoe Lowlands - sand plain	North of Camp Borden (31D/5 820085) South of Camp Borden (31D/4 895900) The Pinery (31D/4 915860)	The Pinery (31D/4 915860)

TABLE 3: LIST OF SIGNIFICANT SITES AND CANDIDATE NATURE RESERVES IN SITE DISTRICT 6-6 EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

VEGETATION-LANDFORM FEATURE AND PHYSIOGRAPHIC REGION	SIGNIFICANT SITE	CANDIDATE NATURE RESERVE
RIVER VALLEY SYSTEM		
Simcoe Lowlands - sand plain	Mad River at Camp Borden (31D/5 845060) Pine River at Camp Borden (31D/5 850035) Nottawasaga River (31D/4 940985)	Nottawasaga River (31D/4 940985)

4. CONCLUSIONS

There are four provincial parks and park reserves with nature reserve potential within the study area - Wasaga Beach, Awenda, Giants Tomb and Duclos Point. An additional seven candidate nature reserves were selected to represent the typical vegetation-landform features of the study area. Thus, the eleven candidate nature reserves identified include: three upland sand plain/till plain with shorecliff complexes, Giants Tomb Island Park Reserve, Awenda Provincial Park Proposed Nature Reserve Zones and Fergusonvale North; one kame hill complex, Rugby West; two swamps, Minesing Swamp and Duclos Point Park Reserve and adjacent lands; one marsh, Matchedash Bay; one bog/lake, Macey Lake Bog; one shoreline beach ridges/dunes complex,Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands; one lowland sand plain, The Pinery; and one river valley system, Nottawasaga River. Priority should be given to Giants Tomb Island Park Reserve, Awenda Provincial Park Proposed Nature Reserve Zones, Minesing Swamp, Matchedash Bay and Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands.

These candidate nature reserves require further research to determine the feasibility of their protection over the long term. Land-use designation of the site and surrounding land and other environmental factors (i.e., size of watershed, etc.) affecting present and future stability should be assessed. Candidate nature reserves which can be feasibly managed in a stable condition over the long term, should either be directly acquired by public agencies such as the Ministry of Natural Resources, Conservation Authorities, the Nature Conservancy and/or individual naturalist clubs. Alternatively, the present owners should be encouraged to work cooperatively to protect and manage the area through private land agreements. The significant sites also are valuable ecological areas which should receive protection through district and municipal land-use planning.

GLOSSARY

Areas of Natural and Scientific Interest (ANSI): ANSIs are areas of land and water containing natural landscapes or features which have been identified as having values related to protection, natural heritage, scientific study or education. ANSIs may vary in level of significance. The most significant of these, Candidate Nature Reserves in the site district reports, may contribute to the achievement of the Ministry's protection objective. Those which do not contribute to the provincial protection objective are referred to as Significant Sites in the site district report.

Candidate Nature Reserve: Candidate nature reserves are sites selected on a systematic basis to represent the natural features and landscapes of Ontario and to complement other protected zones in the provincial park system. Candidate nature reserves contain the best examples of the landform and vegetation features of each site district; features that may be of widespread or restricted occurrence within the site district. They are selected after comparison and evaluation of significant sites sharing similar features. Each candidate nature reserve possesses sufficient ecological integrity, buffering capacity and size that protection appears to be a viable management strategy.

Physiographic Region: Chapman and Putnam (1973) described and mapped fifty-two minor physiographic regions within southern Ontario. These physiographic regions are areas with recognizable local landform patterns. Map 1 outlines the physiographic regions that fall wholly or partially within the site district.

Significant Site: A site of at least regional significance and representative of the landform and vegetation features of the site district. Chosen after reviewing the background information available on sites of biological importance, airphoto analysis and field checking of selected areas. After final evaluation and comparison of similar significant sites, some were chosen as candidate nature reserves. However, all significant sites are recommended for protection through the land-use planning process.

Site District: A subdivision of a site region, with a characteristic pattern of physiographic features (Hills, 1959). Site districts are small scale map units that segregate substantial areas from each other on the basis of broad landform patterns. Refer to Figure 1.

Site Region: An area of land within which the response of the vegetation to the features of the landform follows a consistent pattern (Hills, 1959). Refer to Figure 1.

APPENDIX A: NATURE RESERVE CHECK-SHEETS AND ENVIRONMENTAL DATA CARDS FOR SIGNIFICANT SITES IN SITE DISTRICT 6-6 EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

Page Number

UPLANDS

SAND PLAIN/TILL PLAIN WITH SHORECLIFF

Giants Tomb Island Park Reserve (41A/16 785725)-CNR[1] 25, 32
Awenda Provincial Park Proposed Nature Reserve Zones (31D/13 820650) - CNR 27, 32
Fergusonvale North (31D/12 935345) - CNR 29, 33
Christian Islands Indian Reserve (41A/16 630630) 31
Christian Channel (41A/16 695610) 31
Thunder Beach West (41A/16 720620) 31
East of Awenda (31D/13 840660) 32
Moonstone Northeast (31D/12 065480) 33

KAME HILLS

Rugby West (31D/12 170350) - CNR 35
Martin Farm South (31D/12 115305) 37

WETLANDS

SWAMP

Minesing Swamp (31D/5 900150) - CNR 39, 45
Duclos Point Park Reserve and adjacent lands (31D/6 400100) - CNR 43, 46
Copeland Forest Resource Management Area (31D/12 025345) 45
Bass Lake Park Reserve and adjacent lands (31D/12 170380) 45
McGinnis Point (=Barnstable Bay) (31D/11 370360) 46

MARSH

Matchedash Bay (31D/12 060545) - CNR 47
Wye Marsh (31D/12 905520) 49

BOG/LAKE

Macey Lake Bog (41A/16 785625) - CNR 51
Penetang Lake (31D/13 860600) 53
Marl Lake (31D/12 810290) 53
Lolligan Lake (31D/12 835535) 54

SHORELINE

BEACH RIDGES/DUNES

Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands (41A/8 780270) - CNR 55
Tiny Beach (41A/16 705555) 57
Thunder Bay (41A/16 750600) 57
Georgina Beach (31D/12 810420) 58
Ossossane Beach (31D/12 815460) 58

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[1] CNR indicates a candidate nature reserve.

Page Number

LOWLANDS

SAND PLAIN

The Pinery (31D/4 915860) - CNR 59
North of Camp Borden (31D/5 820085) 61
South of Camp Borden (31D/4 895900) 61

RIVER VALLEY SYSTEM

Nottawasaga River (31D/4 940985)- CNR 63
Mad River at Camp Borden (31D/5 845060) 65
Pine River at Camp Borden (31D/5 850035) 65

SITE DISTRICT 6-6: UPLANDS - Sand Plain/Till Plain with Shorecliff

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Giants Tomb Island Park Reserve	Christian Island	41A/16	785725

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. - MAX.
Simcoe	44° 54'N	80° 00'W	ca. 600 ft. - 750 ft.

LOCALITY

TOWNSHIP LOTS CONCESSIONS

AREA ca. 1285 acres ca. 595 ha

OWNERSHIP

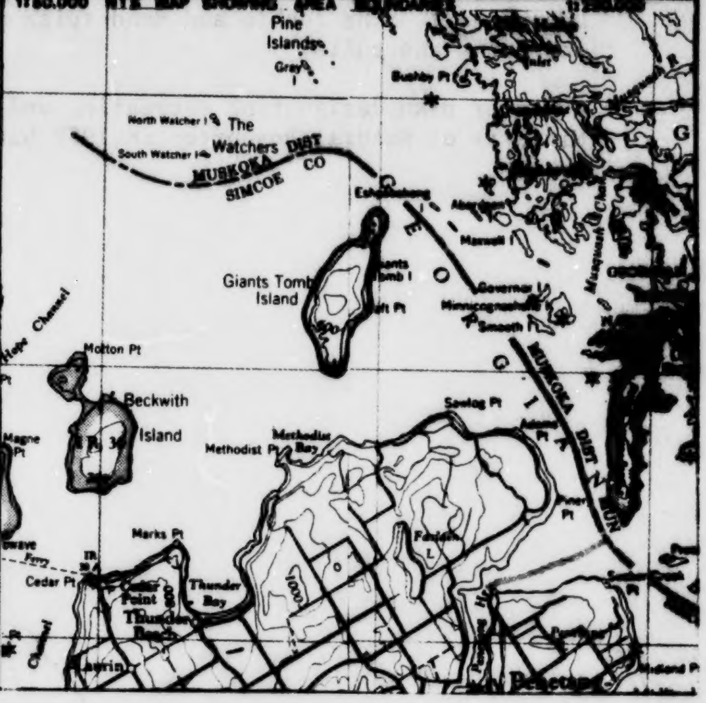
ADMINISTRATION

FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L-1	6-6
MNR REGION AND DISTRICT	**CONSERVATION AUTHORITY**
Central-Huronia	---

AERIAL PHOTOGRAPHS BASE MAP:

YEAR	ROLL	FLIGHT LINE	NUMBERS
1978	4	4462	14-16
1978	4	4463	84-85
1978	4	4464	152-154
1978	3	4465	2-3

1:50,000 NTS MAP SHOWING AREA BOUNDARIES



PHYSICAL AND BIOLOGICAL FEATURES

An 80 m high till dome rising abruptly in the centre of Giants Tomb Island Park Reserve is known as the "tomb". This 595 ha uninhabited sandy island lies in the southern section of Georgian Bay in Waubaushene Bay, 16 km northwest of Penetanguishene. The tomb is ringed by raised beaches formed by post-glacial Lake Nipissing shorecliff. Sugar maple - beech with hemlock forest and yellow birch - sugar maple - white birch along steeper portions predominates. Semi-mature sugar maple - white ash woods with a dense shrub cover of red elderberry (*Sambucus pubens*) are most common on top of the dome. Lowland areas contain red oak - basswood - white ash and white cedar - red ash - yew (*Taxus canadensis*). The western shoreline is rocky while the sandy eastern side displays a typical dry shore succession from active sand beach and dune complex (sand cherry (*Prunus pumila*), beach rye-grass (*Elymus canadensis*), balsam poplar) inland to prairie savannah (hairgrass (*Deschampsia* sp.), Indian grass (*Sorghastrum nutans*), juniper (*Juniperus communis*)) and (red oak - white pine - red pine) open to closed dry forest. On the western side, a wet boulder beach of spikerush (*Eleocharis obtusa*), sedges and beach rush (*Juncus balticus*) grows, ringed by white cedar - big-toothed aspen - white birch forest. Several unusual plant species inhabit the island including the provincially rare (Argus and White, 1977) giant bird's nest (*Pterospora andromeda*), squawroot (*Conopholis americana*) and puttyroot (*Aplectrum hymale*), and the following regionally rare: cut-leaved toothwort (*Dentaria laciniata*), New Jersey tea (*Ceanothus*

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Hanna, 1980, Airphoto Interpretation; Ministry of Natural Resources, 1972; Reznicek, 1972; Reznicek, 1980, Personal Communication.

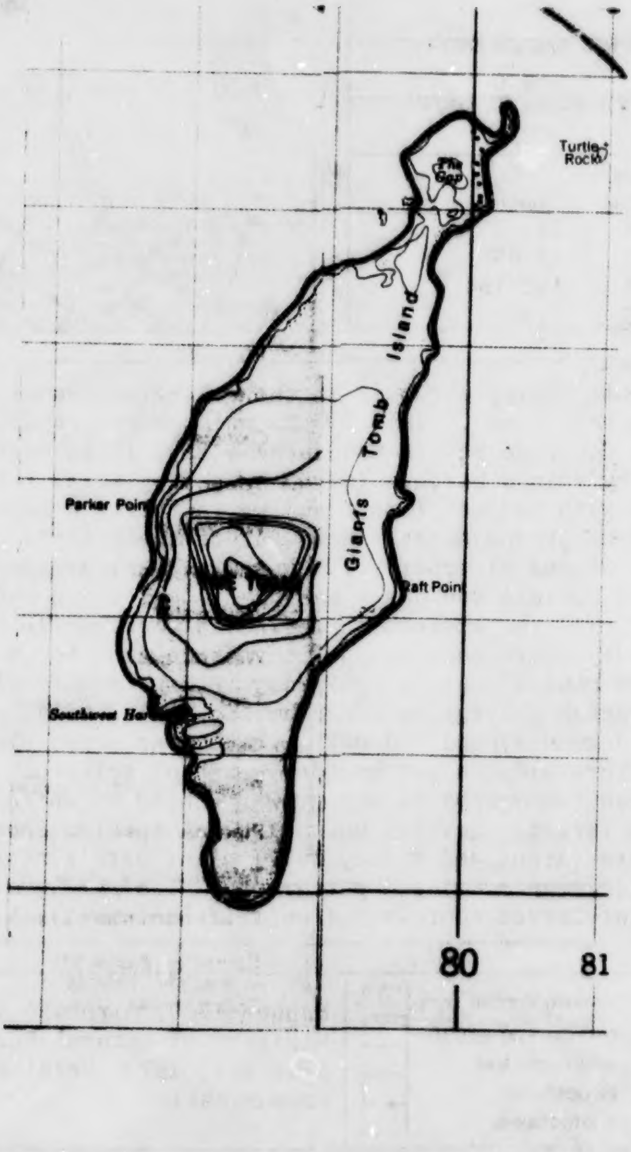
EVALUATION AND PRIORITIES

Based on its high diversity of vegetation types (shoreline beach and dune complex, raised beaches, boulder beach and lowlands), extensive semi-mature upland forest inaccessible location and unusual plants, Giants Tomb Island is recommended as a Provincial Nature Reserve or a park with large Nature Reserve zones.

April, 1981 | R. Hanna

ovatus), yellow pimpernel (*Taenidia integerrima*) and pinesap (*Monotropa hypopithys*). The cobble and sand spits provide resting and feeding areas for terns and gulls.

A master plan designating recreation and natural zones was prepared by the Ministry of Natural Resources in 1972 but has never received approval.



SITE DISTRICT 6-6: UPLANDS - Sand Plain/Till Plain with Shorecliff

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Awenda Provincial Park: Proposed Nature Reserve Zones	Penetanguishene	31D/13 Also on 41A/16	820650

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. - MAX.
Simcoe	44° 50'N	80° 01'W	ca. 650 ft. - 800 ft.

LOCALITY 6 km northeast of Penetanguishene at northern tip of Penetang Peninsula

TOWNSHIP LOTS CONCESSIONS

AREA ca. 1000 acres ca. 460 ha

OWNERSHIP MNR-Parks

ADMINISTRATION

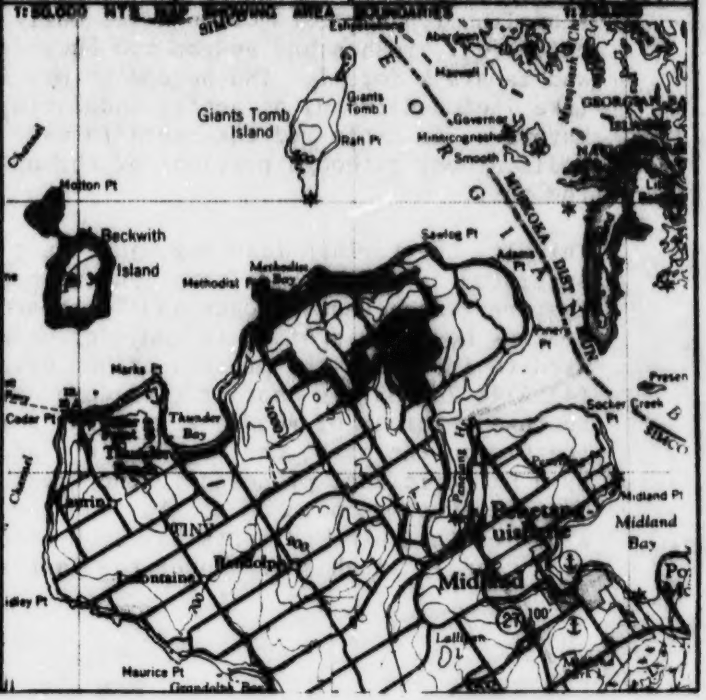
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L-1	6-6

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Huronia	---

AERIAL PHOTOGRAPHS BASE MAP: 447794; 447801

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	26	4435	110-115
1971	26	4434	82-84

1:50,000 NTS MAP SHOWING AREA BOUNDARIES



PHYSICAL AND BIOLOGICAL FEATURES

Awenda Provincial Park is situated at the northern tip of the Penetang peninsula, 6 km northwest of Pentanguishene. A steep bluff running east-west (the Wyebridge - Nipissing raised shoreline) divides the park into a well-drained upland plateau dominated by deciduous forest and a poorly-drained lowland plain with mixed coniferous cover. There are several depressions on the upland plateau containing a variety of wetland communities and small lakes, at Farlain Bog and Gignac, Macey and Second Lakes. Below the bluff, the lag deposits and post-Nipissing plain and strands support a variety of vegetation types: mixed deciduous-coniferous and sugar maple-beech forests, beaver floods with shallow marshes, thickets, wet coniferous woods, sand and boulder beach associations, and a calcareous shoreline fen.

Three Nature Reserve zones have been proposed within Awenda Provincial Park. One Nature Reserve zone follows the Wyebridge-Nipissing bluff and takes in forests below the bluff, the Georgian Bay shoreline and Methodist Point and a small shoreline fen east of Stoney Point (centred at UTM 795 674). Continuous forest covers the bluff and plains below. The lower bluff slopes and boulder field below the bluff support an intermediate-aged forest of sugar maple, beech, yellow birch and hemlock with some white ash and basswood. A range of mixed forest types extend north on the below bluff plain to Georgian Bay; species such as cedar, sugar maple, red maple,

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Blachut, 1976; Burden, 1974 and 1978; Culm, 1973; Hanna, 1980; Airphoto Interpretation; Lindsay, 1978; M.N.R., 1979; Reznicek, 1972.

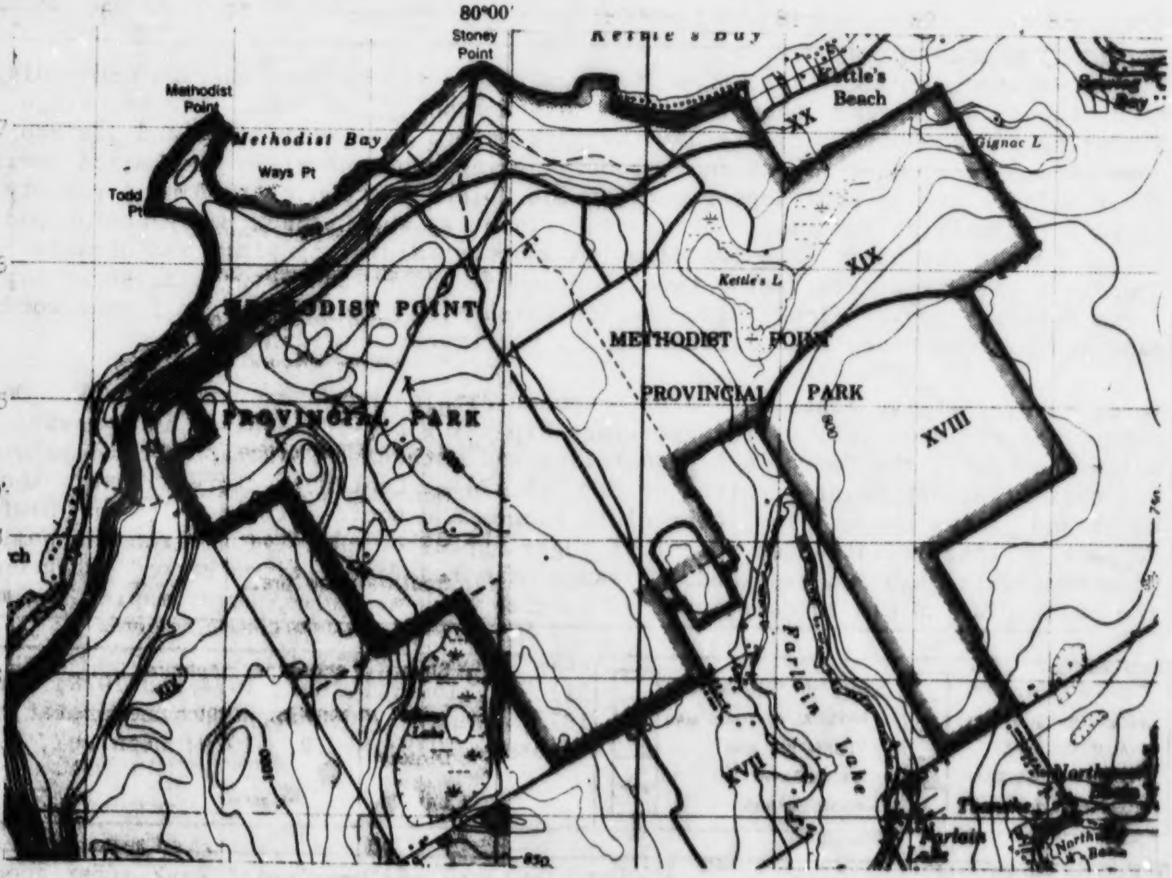
EVALUATION AND PRIORITIES

The three Nature Reserve zones proposed within Awenda Provincial Park offer good examples of relatively undisturbed upland forest and lowland vegetation together with a shoreline fen and a small bog.

DATE COMPILED	COMPILER
November, 1981	R. Hanna and K. M. Lindsay

birch, hemlock, beech and balsam fir are frequent. There are several beaver floods with shrub thickets and shallow marsh vegetation. The shoreline fen consists of open wet marly beach with sweet gale, shrubby cinquefoil, rushes and sedges and backed by a margin of rich wet cedar and tamarack forest. The second Nature Reserve zone northeast of Farlain Lake includes 360 ha of gently undulating to flat sand plain with semi-mature sugar maple-red oak-beech forest. Both zones are presently undisturbed, although portions of the upland forest have been managed in the past.

Thirdly, the Farlain Lake Bog, just west of Farlain Lake, has also been suggested as a Nature Reserve zone to protect a regionally significant feature. Sphaghnum, sedges and low heath shrubs dominate this filled-in, quaking bog. This site, in conjunction with the Macey Lake Bog, can be used to interpret the process of bog development. The Macey Lake Bog (41 A/16 785625) is another candidate nature reserve that adjoins the southwest corner of Awenda Provincial Park. Another regionally significant feature in the park, the Second and Gignac Lake wetlands, are protected by a Historic Zone proposed in the Preliminary Master Plan (1979). This wetland system should be considered a benchmark and because a scientific study of the lake sediments has been used to trace the history of vegetation changes in this area over the last several thousand years (Burden, 1978).



SITE DISTRICT 6-6 - UPLANDS - Sand Plain/Till Plain with Shorecliff

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Fergusonvale North	Elmvale	31D/12	935345

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN.	MAX.
Simcoe	44 ° 49'N	80 °34 'W	ca. 750 ft.	- 925 ft.

LOCALITY 2 km north of Fergusonvale and 3 km east of Elmvale

TOWNSHIP	LOTS	CONCESSIONS

AREA ca. 1630 acres ca. 753 ha

OWNERSHIP

ADMINISTRATION

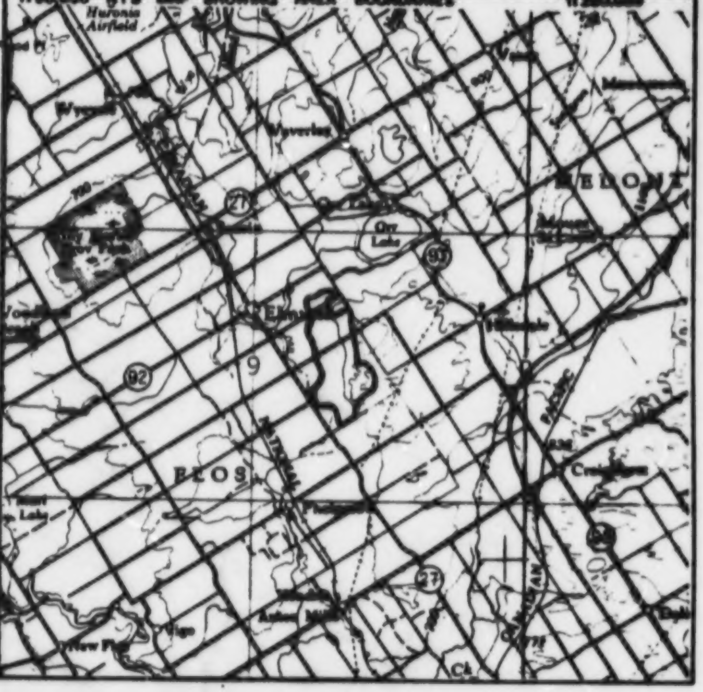
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L-1	6-6

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Huronia	---

AERIAL PHOTOGRAPHS BASE MAP:

YEAR	ROLL	FLIGHT LINE	NUMBERS
~~1971~~	~~25~~	~~4424~~	~~11-13~~
1971	3	4423	73-75

1:50,000 NTS MAP SHOWING AREA BOUNDARIES



PHYSICAL AND BIOLOGICAL FEATURES

A 5 km section of Lake Algonquin shorecliff characterizes this site. Running from Fergusonvale to south of Orr Lake, this area consists of sand plain rising 50 m to a till plain island. Semi-mature woods of sugar maple and sugar maple with beech, white pine, white birch and trembling aspen predominate. Portions of the site are managed by the Ministry of Natural Resources. Surrounded by agricultural lands, the area is dissected by two concession roads.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Hanna, 1980, Airphoto Interpretation; Reznicek, 1980, Pers. Comm.

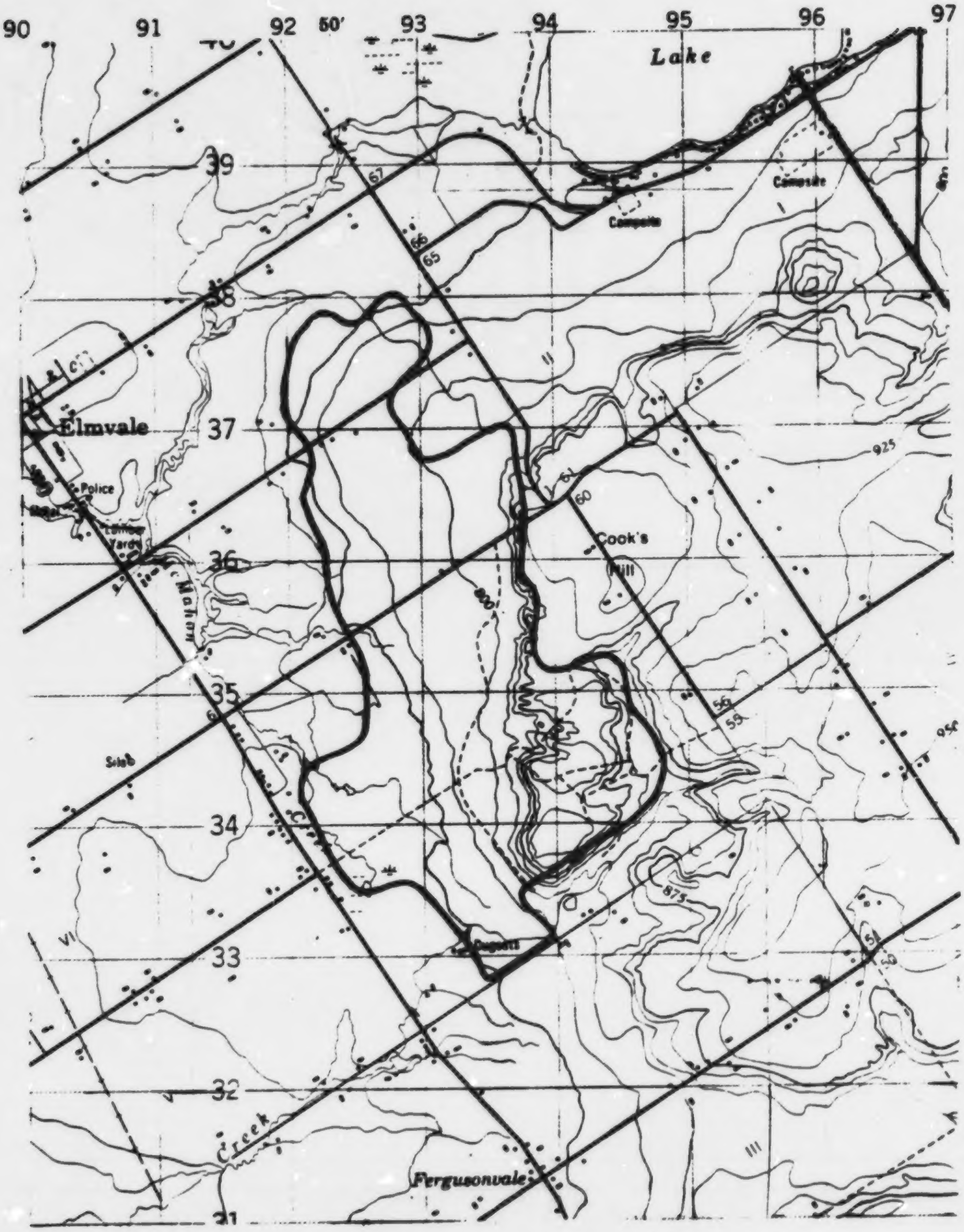
EVALUATION AND PRIORITIES

Based on its relatively undisturbed nature, large size and good representation of the upland forest vegetation of Site District 6-6, Fergusonvale North is recommended as a candidate nature reserve.

DATE COMPILED	COMPILER
April, 1981	R. Hanna

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario. M7A 1W3

Fergusonvale North 31D/12 935345



Shorecliff

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Christian Islands Indian Reserve	41A/16	630630

BRIEF DESCRIPTION

Consists of 3 islands in Georgian Bay northeast of Penetanguishene Peninsula - Christian, Beckwith and Hope - of whicH the latter 2 are undisturbed and uninhabited. Christian Island is partially cleared with shoreline development. Islands are sand plain with shorecliffs rising up to 75 m to drumlinized till plain dome centres.

SOURCES

Hanna, 1980, Airphoto Interpretation; Bobbette, 1975.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
---			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Christian Channel	41A/16	695610

BRIEF DESCRIPTION

Undeveloped 170 ha forest tract on eastern shore of Christian Channel mainland. Fifty metre high post-glacial Lake Nipissing shorecliff. No road access. Forest on top of bluff is mixed sugar maple; some portions managed by Ministry of Natural Resources.

SOURCES

Hanna, 1980, Airphoto Interpretation; Bobbette, 1976.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept.17/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Thunder Beach West	41A/16	720620

BRIEF DESCRIPTION

Sand plain rising 60 m from shore of Thunder Bay to Lake Nipissing shorecliff and 30 m higher to drumlinized till plain ringed by Lake Algonquin bluff. Five hundred hectare site is located on west shore of Thunder Bayin Georgian Bay. This large natural area includes strip shoreline development and several reforestation plots. Forest below Nipissing bluff is young sugar maple-white birch and above sugar maple-beech-white birch-ash.

SOURCES

Hanna, 1980, Airphoto Interpretation; Bobbette, 1976.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 17/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

SITE DISTRICT 6-6: UPLANDS - Sand Plain/Till Plain with Shorecliff

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Giants Tomb Island Park Reserve	41A/16 Also on 31D/13	785725

BRIEF DESCRIPTION

Uninhabited, 595 ha island at mouth of Waubaushene Bay in southern section of Georgian Bay, 10 miles north of Penetanguishene. Sand plain island with till plain dome centre ringed by 80 m high post-glacial Lake Nipissing shorecliff. Top of dome dominated by sugar maple-ash forest. Extensive sugar maple-beech forest dominates island. Sand plain also contains sand beach, dunes, savannah, red oak-white pine-red pine forest and cedar-birch-aspen fringe forest. High diversity of orchids. Several provincially rare plant species. Nature reserve potential./ Hanna, 1980, Airphoto Interpretation, Ministry of Natural Resources, 1972; Reznicek, 1972; Reznicek, 1980, personal communication.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
---			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR WHITNEY BLOCK QUEEN'S PARK TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Awenda Provincial Park Proposed Nature Reserve Zones	31D/13 Also on 41A/16	820650

BRIEF DESCRIPTION

Awenda is a 1892 ha Natural Environment park lying 6 km northeast of Penetanguishene. The Nipissing bluff divides the park into red oak-sugar maple forest above and cedar-hemlock-balsam fir-yew forest below. The upland Nature Reserve zones include 350 ha of intermediate-aged upland forest and 100 ha cedar-sugar maple-red maple-birch forest of the Nipissing bluff. Three Nature Reserve zones are proposed and regionally significant features identified.

SOURCES

Hanna, 1980, Airphoto Interpretation; MNR, 1979; Reznicek, 1972; Culm, 1973.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 17/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR WHITNEY BLOCK QUEEN'S PARK TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	East of Awenda	31D/13	840660

BRIEF DESCRIPTION

Large tract (1,000 ha) of nearly continuous forest east of Awenda Natural Environment Park, east to shore of Georgian Bay. Included are several large reforestation plots and logged areas. Variety of forest types such as young to semi-mature red oak-sugar maple-beech, balsam poplar-red maple-white birch and red oak-sugar maple-white pine.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 17/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR WHITNEY BLOCK QUEEN'S PARK TORONTO M7A 1W3

1981

SITE DISTRICT 6-6: UPLANDS - Sand Plain/Till Plain with Shorecliff

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Fergusonvale North	31D/12	935345

BRIEF DESCRIPTION

This 753 ha site consists of 5 km of shorecliff running north of Fergusonvale. It contains sand plain rising 50 m to the top of the shorecliff and till plain island. The main vegetation types are semi-mature sugar maple and sugar maple with beech, white pine, white birch and trembling aspen. Relatively undisturbed. Parts managed by M.N.R. The area is dissected by two concession roads and surrounded by farm land. A candidate nature reserve.

SOURCES Hanna, 1980, Airphoto Interpretation; Reznicek, 1980, personal communication.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 25/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Moonstone Northeast	31D/12	065480

BRIEF DESCRIPTION

This moderately disturbed (550 ha) site is characterized by 4 km of shorecliff running from Moonstone north to Coldwater. It encompasses sand plain rising 65 m to the top of the shorecliff and till plain island. The moderately rolling to steep terrain is vegetated with young to semi-mature sugar maple-beech and large-toothed aspen-sugar maple-beech forest. Some parts are managed by M.N.R. while other parts are naturally regenerating. Site is bound by concession roads and Hwy. 12.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 24/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Rugby West	Elmvale	31D/12	170350

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
Simcoe	44 ° 34 N	79 ° 32 ' W	ca. 1025 ft. - 1225 ft.

LOCALITY 1 km west of Rugby and 3 km south of Bass Lake

TOWNSHIP **LOTS** **CONCESSIONS**

AREA ca. 300 acres ca. 140 ha

OWNERSHIP

ADMINISTRATION

FOREST REGION AND DISTRICT L-1

SITE REGION AND DISTRICT 6-6

MNR REGION AND DISTRICT Central-Huronia

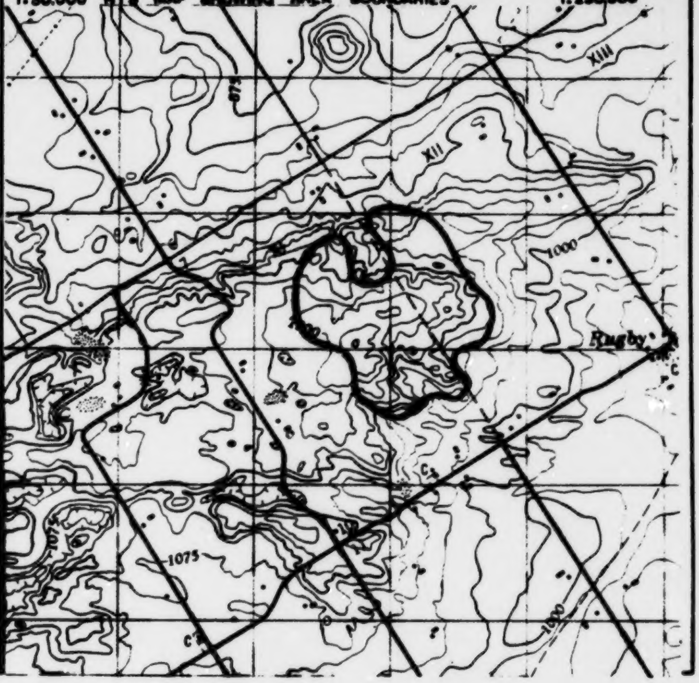
CONSERVATION AUTHORITY ---

AERIAL PHOTOGRAPHS

BASE MAP:

YEAR **ROLL** **FLIGHT LINE** **NUMBERS**

1:50,000 NTS MAP SHOWING AREA BOUNDARIES **1:250,000**



PHYSICAL AND BIOLOGICAL FEATURES

A complex of moderately rolling kame hills west of Rugby and south of Bass Lake typifies this site. The vegetation consists mainly of relatively undisturbed semi-mature sugar maple-ash-beech woods; the understorey is a dense layer of sugar maple seedlings. An unmaintained road allowance bissects the area. The 0.8 ha Rugby Estate Development lies adjacent to its southeast side while the remainder is surrounded by agricultural and reforested lands.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Hanna, 1980, Airphoto Interpretation.

EVALUATION AND PRIORITIES

Rugby West offers the best example of relatively undisturbed kame hills with upland semi-mature woods in Site District 6-6.

DATE COMPILED April, 1981

COMPILER R. Hanna 35

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario, M7A 1W3

SITE DISTRICT 6-6: UPLANDS - Kame Hills

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Martin Farm South	31D/12	115305

BRIEF DESCRIPTION

One hundred, thirty hectares of gently to moderately rolling kame hills 2 km southwest of Martin Farm. The site is bissected by a concession road and surrounded by agricultural lands and reforestation plots. The forest is immature to semi-mature sugar maple-ash-beech with sugar maple understory; contains some regenerating sections.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 24/81 Hanna/Terpstra			Hanna, 1980

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Rugby West	31D/12	170350

BRIEF DESCRIPTION

One hundred, thirty hectares of moderately rolling kame hills west of Rugby. Undisturbed semi-mature maple-ash-beech woods with little understory and dense layers of sugar maple seedlings. Excellent example of kame hills. Site is bissected by right of way. 0.8 ha Rugby Estate Development adjacent to southeast side. Remainder surrounded by agricultural lands. A candidate nature reserve.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 24/81 Hanna/Terpstra			Hanna, 1980

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Minesing Swamp	Barrie	31D/5	900150

COUNTY, DISTRICT or REGIONAL MUNICIPALITY Simcoe

LAT. 44 ° 25'N **LONG.** 79 ° 52'W **ALT. MIN. MAX.** ca. 200 m - 250 m

LOCALITY 16 km west of Barrie, north of Hwy. 90

TOWNSHIP Vespra, Sunnidale **LOTS** **CONCESSIONS**

AREA ca. 15,000 acres ca. 6,000 ha

OWNERSHIP private/crown/N.V.C.A./county forest

ADMINISTRATION N.V.C.A. and M.N.R.

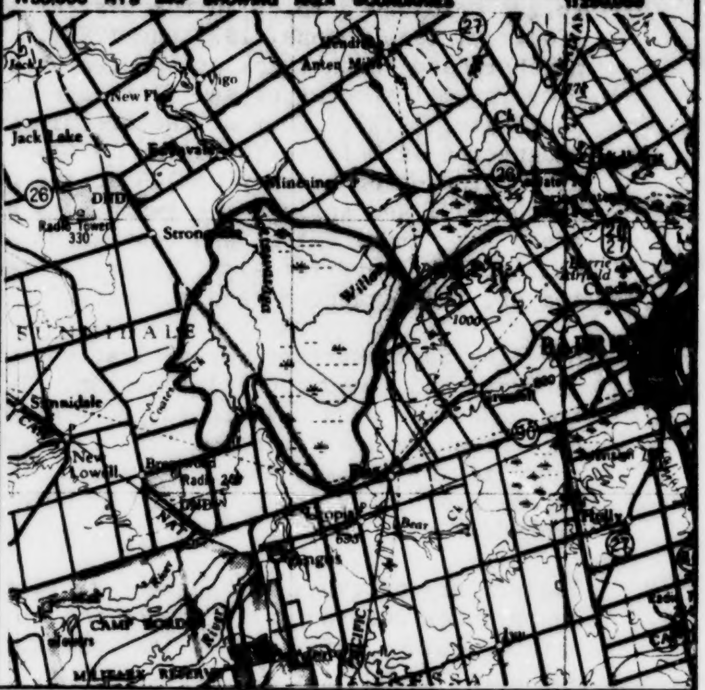
FOREST REGION AND DISTRICT Huron-Ontario

SITE REGION AND DISTRICT 6-6 Barrie

MNR REGION AND DISTRICT Central-Huronia

CONSERVATION AUTHORITY Nottawasaga Valley

1:50,000 NTS MAP SHOWING AREA BOUNDARIES



AERIAL PHOTOGRAPHS **BASE MAP:** 443794; 444794

YEAR	ROLL	FLIGHT LINE	NUMBERS
1978	52	4424	309-317
1978	10	4425	51-60
1978	28	4426	7-16
1978	49	4427	330-342
1978	1	4428	48-59
1978	1	4429	9-20
1978	18	4430	9-17

The swamp is part of an extensive glaciolacustrine plain. In the southeastern section, a combination of recent peat deposits and cold, calcareous groundwater flow from the adjacent postglacial shorelines have resulted in the formation of an extensive boreal wetland complex. Balsam fir, cedar, tamarack and black spruce swamp, sedge and reed (*Phragmites australis*) and sweet gale (*Myrica gale*) low shrub fen with treed string islands and willow thickets predominate. The rich open fens with treed string islands, a pattern typical of the Hudson Bay Lowlands, are the largest of their type in southern Ontario (Reznicek, 1973; IBP, 1979) and support one of the largest populations of the provincially and nationally rare prairie white fringed orchid (*Plantathera leucophaea=Habenaria leucophaea*) (Bobbette, 1980, pers. comm.).In striking contrast to the northern complex, Carolinian bottomland and levee forests have developed in the northcentral and northwestern parts of the swamp along the Nottawasaga River and its tributaries and in extensive bottomlands of a broad basin. A hackberry forest with many species of southern affinity is established in the warmer than normal micro-climate that prevails along the Nottawasaga levees. The Minesing bottomlands support one of the most extensive sites for pure silver maple in Ontario. Cattail marsh and shrub carr are common in Minesing's basin. An upland deciduous cover of sugar maple-beech characterizes the Nipissing bluff.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES
Airphoto Analysis, 1977;Argus and White,1977; Bobbette and Maycock,1976;Hanna,R.,1972-1980, Field visits;Hanna,R.,1981,Minesing Swamp (draft report in prep.); Hanna, E., 1973 & 1980, Pers.Comm.;Hanna and Hanna,1979;IBP,1976;Jeglum, et al,1974;Moriyama,1976;Sims,Riley & Jeglum, 1979;Riley,1980;Sjors,1969,1961;Whiting,1980.

EVALUATION AND PRIORITIES
Extensive wetland complex of outstanding provincial and national significance (boreal fen and swamp and Carolinian levee forest and bottomland wetland types, numerous regionally and provincially rare plant and bird species, important waterfowl staging area, large Great Blue Heron heronry). Management of swamp watershed required.

July, 1981 R. Hanna

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario. M7A 1W3

The diversity of habitats is complemented by many rare and unusual birds and plants. Several northern (e.g., Sharp-shinned Hawk) and southern (e.g., Cerulean Warbler) birds nest at their breeding limits in Minesing (Godfrey, 1966, Hanna, 1973 and 1980). In addition to the numerous northern and southern plant species at their distributional limits in Minesing, 11 species of the flora are considered provincially rare (Argus and White, 1977). Four of the breeding bird species are believed to be endangered in Ontario (Goodwin, 1976). The bottomlands harbour a large Great Blue Heron heronry of 146 active nests (Hanna and Hanna, 1979 a). In the fall and spring, the swamp acts as an important waterfowl staging area. The areal extent and continuous nature of the swamp also provides habitat and range for significantly-sized wildlife populations of deer, beaver, mink, raccoon and muskrat.

Minesing Swamp warrants special attention because of its flood storage capacity and flood control function. Two distinct hydrologic systems influence the area. The cold groundwater released from the base of the ancient shorelines is dramatically different from the turbid, cyclic character of the Mad and Nottawasaga Rivers. The swamp has been created and maintained by the hydrology of both these watersheds (surface and groundwater).

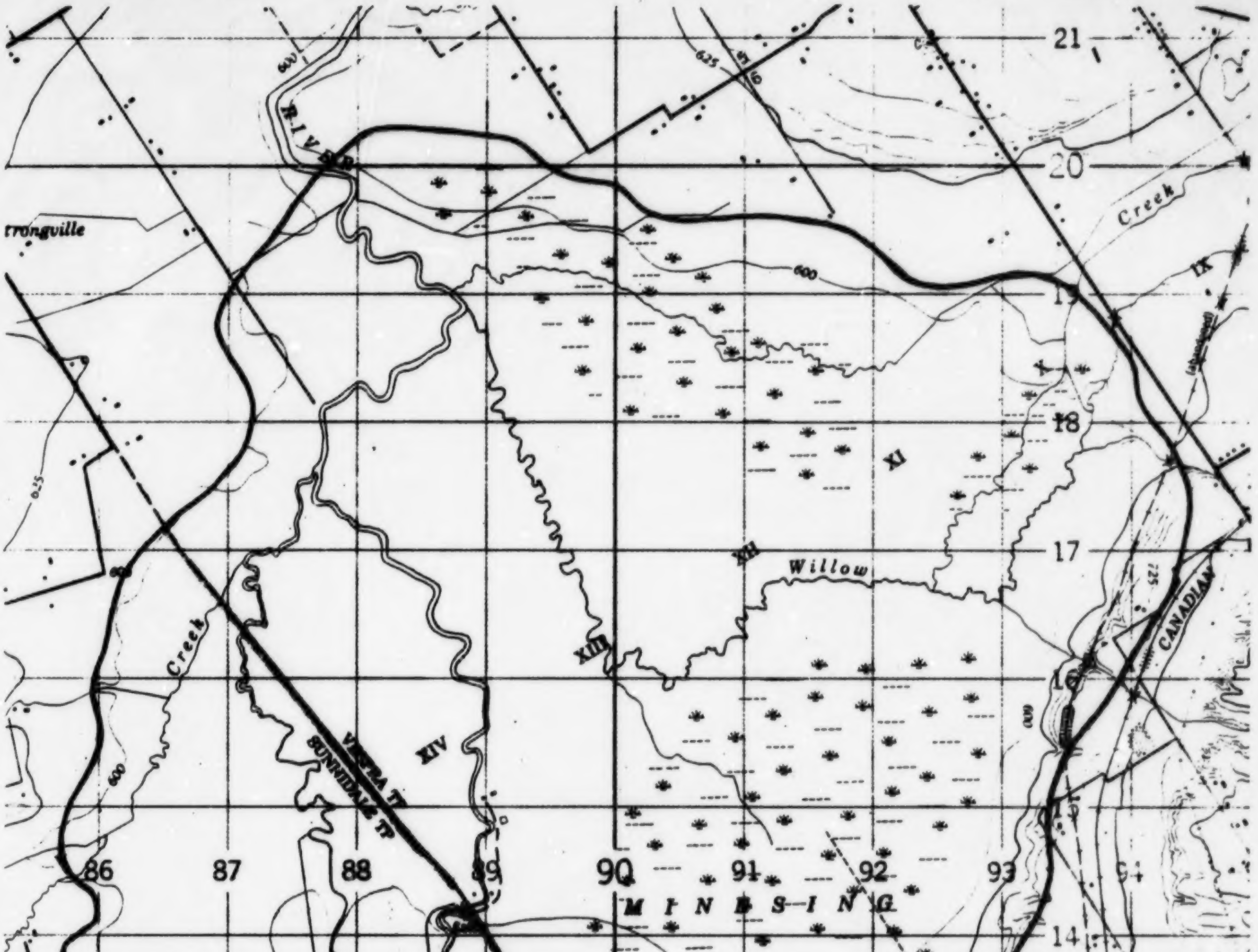
The variety of types and degrees of past and present human disturbance contributes substantially to the unique character of Minesing Swamp. Although man has influenced its composition through clearing, drainage and burning, much of the swamp persists in a near natural state.

Most of the 6,000 ha of the swamp is in private ownership with the exception of a 300 ha section of silver maple bottomland forest owned by the Nottawasaga Valley Conservation Authority. Small fragments of the other wetland types are owned by the Conservation Authority and the Province.

A draft master plan was prepared by Moriyama, 1976, for the Minesing Swamp Coordinating Committee established and chaired by the Ministry of Natural Resources, with membership from the Nottawasaga Conservation Authority, Nature Conservancy of Canada and Canadian National Sportsmen's Show. Minesing was proposed as a Natural Environment Park with nature reserve, natural environment, historical and access zones. The plan has not received ministerial approval particially due to several contentious recommendations and lack of acquisition funds. In the interim period, a set of management guidelines have been formed by the Management Committee composed of three representatives each from the Ministry of Natural Resources, and the Nottawasaga Conservation Authority together with the Chairman of the Authority.

A draft report (Hanna, in preparation) recommending zoning and management is currently being prepared for the Natural Areas program of the Parks and Recreation Section, Ministry of Natural Resources, Richmond Hill. The recommendations in this report will cover essential management strategies and techniques for this wetland system. Additionally, some alternative proposals for site designation and zoning will be outlined.

Minesing Swamp 31D/5 900150



ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Duclos Point Park Reserve and adjacent lands	Beaverton	31D/6	400100

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
York	44 ° 20 'N	79 ° 15 'W	ca. 725 ft.

LOCALITY
3 km northwest of Pefferlaw

TOWNSHIP LOTS CONCESSIONS

AREA
ca. 710 acres ca. 330 ha

OWNERSHIP

ADMINISTRATION

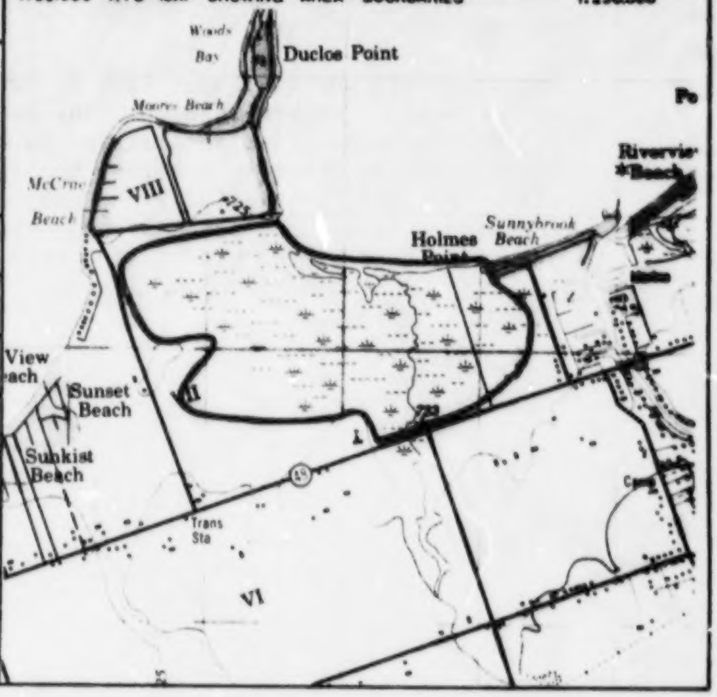
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L-1	6-6
MNR REGION AND DISTRICT	**CONSERVATION AUTHORITY**
Central-Maple	South Lake Simcoe

AERIAL PHOTOGRAPHS

BASE MAP: 443791

YEAR	ROLL	FLIGHT LINE	NUMBERS
1978	8	4423	259-261
1978	52	4424	355-356

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

Lying on the south shore of Lake Simcoe 3 km northwest of Pefferlaw, Duclos Point is characterized by a beach spit and backshore marsh and an extensive swamp extending inland from the storm beach. Two small unnamed streams empty into the east marsh. The park reserve represents 95 ha of the total 240 ha marsh-swamp wetland complex.

Moving inland from Lake Simcoe the vegetation pattern is as follows: Offshore sand bars are sparsely vegetated with bulrush (*Scirpus americanus*). A young forest of balsam poplar-willow-white birch-red ash-cedar is found on the lowlying wet beach bar. The west and east inlet marshes support cattail (*Typha latifolia*), bulrush, wild rice (*Zizania aquatica*) and water willow (*Decodon verticillatus*). These grade into reed (*Phragmites australis*)-blue joint grass (*Calamagrostis canadensis*) meadow and then into extensive alder, alder-red ash, silver maple-white birch, cedar and tamarack swamp.

Concentrated water-oriented, recreational development is found along the Lake Simcoe shoreline, east and west of the site. Highway #48 abuts the wetland's southern edge while on the east side of the park reserve, a disused public road allowance running north-south to the lake has been cleared and rough-filled.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Bobbette, 1980; Coates, 1973; Hanna, 1980.

EVALUATION AND PRIORITIES

Duclos Point Park Reserve and adjacent lands, one of the few remaining undisturbed lakefront wetland complexes on Lake Simcoe, provides good representation of the progression from beach spit to backshore marsh, meadow, thickets and swamp.

DATE COMPILED	COMPILER
April, 1981	R. Hanna

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario, M7A 1W3

Duclos Point Park Reserve was proposed as a Provincial Nature Reserve by the Duclos Point Park Reserve Master Plan (Coates, 1973) prepared for the Ministry of Natural Resources, but ministerial approval of this plan has never been received.

In conclusion, Duclos Point Park Reserve and adjacent lands are recommended as a candidate nature reserve. The park reserve itself is proposed as a Provincial Nature Reserve class of park. This wetland site is only regionally important in contrast to Minesing Swamp (31D/5 900150), a highly diverse, provincially and nationally significant wetland. However, it contains a lakefront, sandbar and associated backshore marsh complex, unique to Lake Simcoe and missing from Minesing.

SITE DISTRICT 6-6: WETLANDS - Swamp

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Minesing Swamp	31D/5	900150

Extensive wetland complex of outstanding provincial and national significance. High diversity of vegetation types-(boreal fen and swamp, Carolinian levee forest and bottomlands, marsh and upland terrace). Numerous regionally rare plants (Argus and White, 1977) and 4 endangered birds (Goodwin, 1976). Important waterfowl staging area and Great Blue Heron heronry. Important flood storage capacity and flood control function. A candidate nature reserve.

Bobbette, 1980, Pers. Comm.; Bobbette and Maycock, 1976; Hanna, R., 1972-1980, Field Visits; Hanna, R., 1981;Hanna and Hanna, 1979; IBP, 1976;Moriyama,1976;Sims,et al,1979.

	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Spring/summer 1973-1980 Hanna			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD	ONTARIO MINISTRY OF NATURAL RESOURCES PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION 3rd FLOOR WHITNEY BLOCK QUEEN'S PARK TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Copeland Forest Resource Management Area	31D/12	025345

BRIEF DESCRIPTION Within the 1650 ha Copeland Property, the steep valley slopes of the Oro Hills and wetland valley below from the headwaters of the Coldwater and Sturgeon Rivers. Lying just north of Craighurst, the major wetland types within Copeland are cedar and cedar-red maple-balsam fir-ash swamp, alder-willow scrub and sedge-cattail marsh. The steep sandy slopes are dominated by young to semi-mature sugar maple-beech with ash, oak, hemlock and white birch. The Copeland Forest is managed by M.N.R. and contains a network of forestry roads and trails and reforested areas.

SOURCES Hanna, 1980, Airphoto Interpretation; Bobbette and Weber, 1979.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 24/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD	ONTARIO MINISTRY OF NATURAL RESOURCES PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION 3rd FLOOR WHITNEY BLOCK QUEEN'S PARK TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Bass Lake Park Reserve and adjacent lands	31D/12	170380

BRIEF DESCRIPTION Five Hundred, forty-seven hectare swamp-marsh wetland complex of which M.N.R. owns 260 ha, lying at southwest end of Bass Lake and bordered by glacial Lake Algonquin shorecliff. Vegetation consists of scrubby marshland (red maple-willow-white birch-dogwood); cedar-white birch, cedar-balsam fir, black ash-dead elm-red maple swamps; alder thickets; and cattail scrub marsh. Some cutting on private lands. Two shoreline cottages. Right-of-way through wetland utilized by snowmobiles and trail bikes.

SOURCES Hanna, 1980, Airphoto Interpretation; Hanna, 1980; IBP, 1970.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 24/80 Hanna/Terpstra			Hanna, 1980

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD	ONTARIO MINISTRY OF NATURAL RESOURCES PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION 3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	McGinnis Point (=Barnstable Bay)	31D/11	370360

SHORT DESCRIPTION

Two hundred hectare shoreline swamp on north shore of Lake Simcoe in Barnstable Bay with two creek outlets. Mainly silver-red maple swamp with cedar, yellow birch, cedar swamp, alder-willow-dogwood thickets and cattail-bulrush marsh. Surrounded by agricultural lands; abutting shoreline development.

SOURCES Hanna, 1980, Airphoto Interpretation; Harvey, Lichtenfeld and Schreiber, 1971; Cuddy, 1971.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept.18/80 Hanna/Terpstra			Hanna, 1980

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD	ONTARIO MINISTRY OF NATURAL RESOURCES PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION 3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Duclos Point Park Reserve and adjacent lands	31D/6	400100

SHORT DESCRIPTION

Two hundred and forty hectare swamp-marsh wetland complex situated on south shore of Lake Simcoe, 95 ha are owned by M.N.R. Vegetation types consist of sandy shoreline with bulrush patches; balsam poplar-willow beach bar; two open water cattail-bulrush-wild rice lakefront marshes; alder-red ash, silver maple-white birch-cedar and tamarack-alder swamps. Abutting intensive shoreline development. Right-of-way through eastern side. A candidate nature reserve.

SOURCES Hanna, 1980, Airphoto Interpretation; Coates, 1973; Hanna, 1980.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
March 19/80 Hanna/Lindsay			Hanna, 1980

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD	ONTARIO MINISTRY OF NATURAL RESOURCES PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION 3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Matchedash Bay	Elmvale	31D/12	060545

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
Simcoe	44 ° 44 ′N	79 ° 40 ′W	ca. 600 ft.

LOCALITY
mouth of North River, Matchedash Bay

TOWNSHIP LOTS CONCESSIONS

AREA
ca. 1100 acres ca. 510 ha

OWNERSHIP

ADMINISTRATION

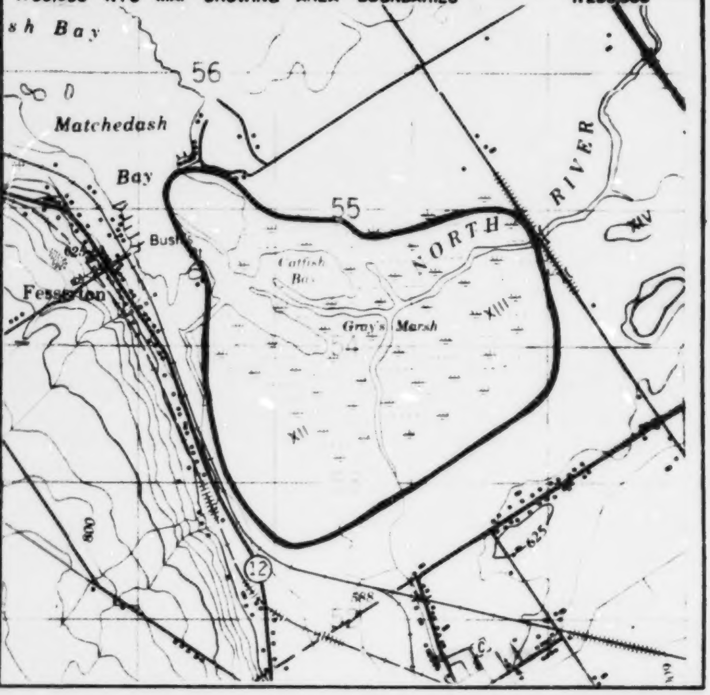
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L-1	6-6

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Huronia	---

AERIAL PHOTOGRAPHS
BASE MAP: 447793

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	25	4431	91-94
1971	13	4430	24-27

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

Lying 4 km north of Coldwater at the mouth of the North River and along the southern edge of the Canadian Shield, Matchedash Bay harbours a variety of marshland vegetation types. The types include cattail and bulrush (*Scirpus fluviatilis - S. cyperinus*) marsh, grass (*Phragmites australis - Glyceria grandis*) and sedge (*Carex aquatilis - C. stricta - C. lanucinosa - C. atherodes*) meadow, and open water areas of bladderwort (*Utricularia vulgaris*) - coontail (*Ceratophyllum demersum*). Surrounding lowland forests include the most northerly example of southern lowland or bottomland forest types of red ash, basswood, sugar maple and bur oak on sites varying from wet clay flats to dry rock knolls. Numerous southern species such as blue phlox (*Phlox divaricata*), false mermaid weed (*Floerkea proserpinacoides*), hairy wild rye (*Elymus villosus*), narrow leaved spring beauty (*Claytonia virginica*) occur here, at or near their northern limit of distribution (Reznicek, 1974). Additionally, the marshes act as an important stop-over area for migratory waterfowl. Matchedash Bay is surrounded by pasture land on its northeast to south perimeters with some shoreline cottages along its eastern shore in the northern portion; highway 400 abuts the west and southwesterly sections. Several drainage ditches have been constructed to convey water to the marsh from adjacent agricultural fields.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION ☐
VEGETATION SUMMARY ☐
EVALUATION SHEET ☐
COMMUNITY DESCRS. ☐
COMMUNITY COMP. LISTS ☐
SUMMARY SPECIES LISTS ☐
PHYSICAL FEATURES MAP ☐
VEGETATION MAP ☐
BIBLIOGRAPHY ☐
PHOTOGRAPHS ☐

MAJOR INFORMATION SOURCES
Cuddy, 1977; Hanna, 1980, Airphoto Interpretation; Reznicek, 1974.

EVALUATION AND PRIORITIES
As one of the largest cattail-sedge marshes in Site District 6-6, Matchedash Bay contains a variety of marshland, lowland and upland vegetation types, uncommon southern plant species and acts as a migratory waterfowl stop-over area.

DATE COMPILED	COMPILER
April, 1981	R. Hanna

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Wye Marsh	31D/12	905520

BRIEF DESCRIPTION

Eight hundred hectare wetland complex along Wye River, southeast of Midland, consisting mainly of closed cattail marsh with small openings, fen, swamps, and wooded upland fringe. Natural recharge area surrounded by agricultural fields. Wye Marsh Wildlife Centre is maintained by Canadian Wildlife Service; boardwalk through marsh in northeast section. Important waterfowl feeding, breeding and migratory stop-over area.

SOURCES

Hanna, 1980, Airphoto Interpretation; MacDonald, 1972; M.N.R. Sensitive Areas.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 18/80 Hanna/Terpstra			Hanna, 1980

ONTARIO NATURE RESERVES PROGRAM
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ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Matchedash Bay	31D/12	060545

BRIEF DESCRIPTION

One of the largest cattail-sedge marshes (510 ha) in Huronia District. Marsh types include cattail; bulrush (*Scirpus fluviatilis - S. cyperinus*); grass (*Phragmites australis - Glyceria grandis*); sedge (*Carex aquatilis - C. stricta - C. lanucinosa - C. atherodes*) and open water areas of bladderwort (*Utricularia vulgares*) - coontail (*Ceratophyllum demersum*). Most northerly example of southern bottomland forest (red ash-basswood-sugar maple-bur oak). Located along mouth of North River and Matchedash Bay in Georgian Bay. Surrounded by pasture land. A candidate nature reserve.

SOURCES

Hanna, 1980, Airphoto Interpretation; Cuddy, 1977; Reznicek, 1974.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 18/80 Hanna/Terpstra			Hanna, 1980

ONTARIO NATURE RESERVES PROGRAM
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ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
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1981

SITE DISTRICT 6-6: WETLANDS - Bog/Lake

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Macey Lake Bog	Christian Island	41A/16	785625

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
Simcoe County	44° 49'N	80° 00'W	ca. ft.

LOCALITY
4 km northwest of Penetanguishene

TOWNSHIP LOTS CONCESSIONS

AREA
ca. 165 acres ca. 75 ha

OWNERSHIP

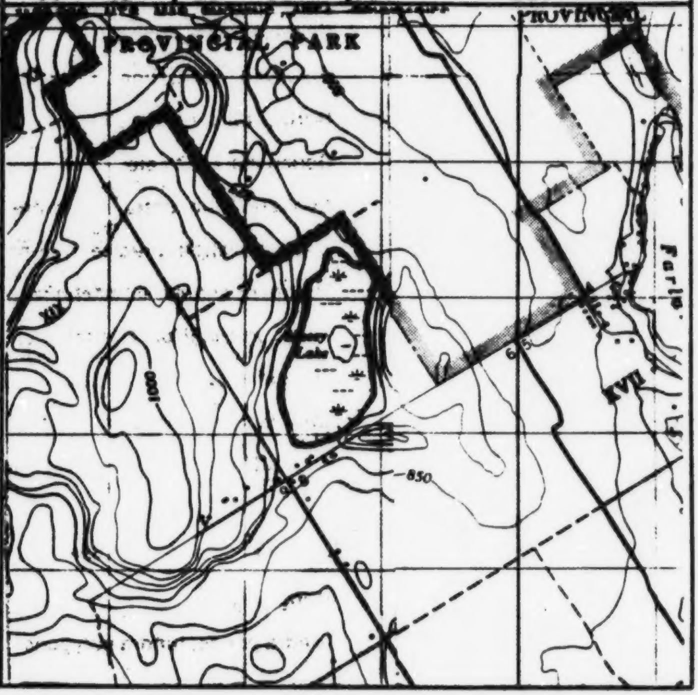
ADMINISTRATION

FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L-1	6-6

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Huronia	___

AERIAL PHOTOGRAPHS
BASE MAP:

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	26	4434	80-81



PHYSICAL AND BIOLOGICAL FEATURES

Located immediately southwest of Awenda Provincial Park,4km northwest of Penetanguishene, Macey Lake Bog is a 75 ha open water, *Sphaghnum* treed bog complex. The vegetation pattern demonstrates a classical bog succession from open water centre ringed by a floating *Sphaghnum* mat of leatherleaf (*Chaemadaphne calyculata*), bog laurel (*Kalmia polifolia*), cranberry (*Vaccinium oxycoccos*) and blueberry (*Vaccinium* sp.) to open treed bog fringe (spruce-tamarack-white pine) and dense tamarack-spruce swamp. This complex provides habitat for the rare to uncommon Pickerel Frog, a species believed to be declining in southern Ontario (Campbell, 1977).

Surrounded by agricultural lands, the bog has been disturbed in the past by minor peat mining operations. A private owner has mined peat in the south end of the bog and cut a swath on the northeast side through the swamp and bog to the open water centre.

The Preliminary Master Plan for Awenda Provincial Park (1979) proposed this site for inclusion in the park as a Nature Reserve zone.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Bobbette, 1976; Campbell, 1977; Culm, 1973; Hanna, 1980, Airphoto Interpretation; M.N.R., 1979; Reznicek, 1972.

EVALUATION AND PRIORITIES

Despite its disturbed nature, Macey Lake Bog is a good example of classical bog succession. It is relatively inaccessible and provides habitat for the rare to uncommon Pickerel Frog.

DATE COMPILED	COMPILER
April, 1981	R. Hanna 51

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Macey Lake Bog	41A/16	785625

BRIEF DESCRIPTION

Seventy-five hectare open water-*Sphaghnum*-treed bog complex adjacent to the southwest corner of Awenda Natural Environment Park which lies 3km east of Thunder Bay. This area is a proposed acquisition and Nature Reserve zone for Awenda (M.N.R., 1979). Contains open water, ring of *Sphaghnum*-leatherleaf-bog laurel, open spruce-tamarack-white pine bog and hummocky dense tamarack-spruce swamp. Private owner has mined peat in south end and cut swath through swamp and bog on northeast side.A candidate nature reserve.

SOURCES Hanna, 1980, Airphoto Interpretation; Bobbette, 1976; Culm, 1973; M.N.R., 1979; Reznicek, 1972.

	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept.17/80 Hanna/Terpstra	.		Hanna, 1980

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Penetang Lake	31D/13	860600

BRIEF DESCRIPTION

Small spring-fed lake with marshy areas of bur-reed-pickerelweed, bog fringe of leatherleaf-cattail-marsh fern-virginia chain fern-tamarack, red maple swamp and balsam poplar-sugar maple-red maple-ash-black cherry-red oak upland fringe. This 70 ha site lies 2 km northeast of Penetanguishene. Several garbage trails lend to the lake's edge.

SOURCES

Hanna, 1980, Airphoto Interpretation; Bobbette, 1976.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 17/80 Hanna/Terpstra			Hanna, 1980

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Marl Lake	31D/12	810290

BRIEF DESCRIPTION

Marl Lake is at the headwaters for Marl Creek and lies 4 km east of Wasaga Beach on Georgian Bay. The 150 ha site is surrounded by a golf course, agricultural lands and forest. Two rights-of-way lead to the lake. The main vegetation types progressing from the open water centre to the shore, are stonewort-pondweed swards, yellow and white pondlily sward, bulrush sward, cattail marsh, floating sedge mat and willow-dogwood carr.

SOURCES

Hanna, 1980, Airphoto Interpretation; Carlisle, Cuddy, and Norman, 1972; Bobbette, 1976.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Hanna/Terpstra			Hanna, 1980

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1981

SITE DISTRICT 6-6: WETLANDS - Bog/Lake

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Lolligan Lake	31D/12	835535

BRIEF DESCRIPTION

Small spring-fed lake with bulrush marsh, *Sphaghnum*-leatherleaf-Virginia chain fern-cottongrass-tamarack-red maple bog fringe, red maple-winterberry-mountain holly thickets and red maple-balsam poplar-ash lowland fringe. This 80 ha site lies 3 km southwest of Midland and is surrounded by agricultural lands and reforestation plots.

SOURCES

Hanna, 1980, Airphoto Interpretation; M.N.R. Sensitive Areas.

FIELD SURVEY DATE	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 17/80 Hanna/Terpstra			Hanna, 1980

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1981

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Wasaga Beach Provincial Park Proposed Nature Reserve Zone & adjacent lands	Collingwood	41A/8 Also on 41A/9	780270

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. – MAX.
Simcoe	44° 30′ N	80° 01′ W	ca. 600 ft. - 675 ft.

LOCALITY: south of Wasaga Beach

TOWNSHIP / LOTS / CONCESSIONS:

AREA: ca. 1190 acres ca. 550 ha

OWNERSHIP:

ADMINISTRATION:

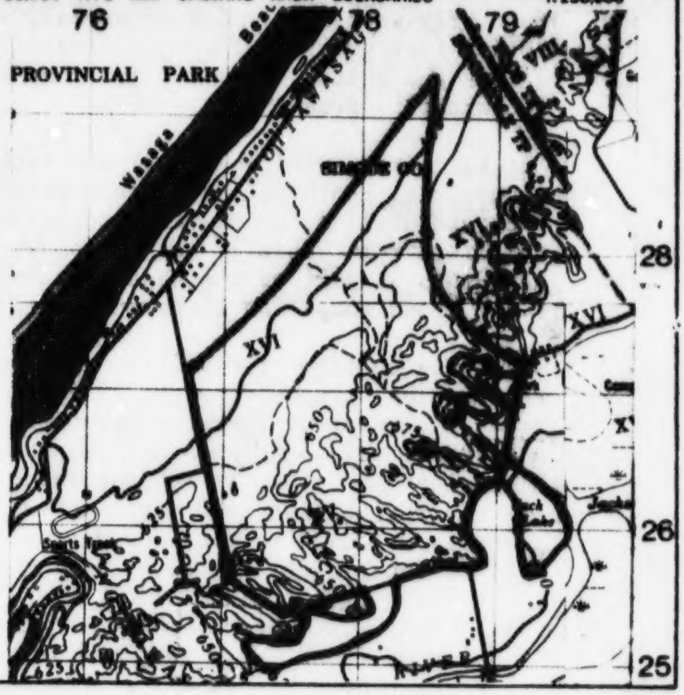
FOREST REGION AND DISTRICT: L-1	SITE REGION AND DISTRICT: 6-6
MNR REGION AND DISTRICT: Central-Huronia	CONSERVATION AUTHORITY: Nottawasaga

AERIAL PHOTOGRAPHS

BASE MAP: 445801, 444801, 445794

YEAR	ROLL	FLIGHT LINE	NUMBERS
1978	101	4436	90-95
1978	95	4435	159-165
1978	95	4434	206-211
1978	95	4433	250-252

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

The 412 ha proposed Nature Reserve zone (M.N.R., 1978, Wasaga Beach Provincial Park Recommended Master Plan), a part of Wasaga Backlands Park Reserve, lies inland from Wasaga Beach Provincial Park within a broad meander of the Nottawasaga River. It is part of a provincially significant Great Lakes barrier bar and dune complex composed of active beach and rivermouth spit, raised beaches, transverse, parallel and parabolic dunes, lagoonal sediments and river floodplain. The proposed Nature Reserve zone includes part of a provincially significant raised beach and dune complex; although only a small section of raised beaches occurs within this zone. The proposed adjacent lands (Hanna, 1980) contain additional raised beaches. A striking vegetation pattern of white birch-red maple forest on well drained sandy beach ridge separated by red ash-white cedar swamp forest or dogwood (*Cornus stolonifera*) - holly (*Ilex verticillata*) thickets in the intervening wet swales is evident in the beach ridge formation. Behind the raised beaches, the foredunes contain vegetation ranging from open desert associated with blowout through sand prairie grassland, heath and savannah to closed forest. Narrow-leaved New Jersey tea (*Ceanothus ovatus*)-blueberry (*Vaccinium* sp.)-huckleberry (*Gaylussacia baccata*)-lichen heath and open to closed white pine-red pine forest form the major vegetation cover. Moving further inland, much of the steeply sloping parabolic dunes (the largest and least disturbed in Ontario) are covered with an open to closed forest of red oak-white pine-red pine.

DATA SHEETS ATTACHED

- PHYSICAL DESCRIPTION ☐
- VEGETATION SUMMARY ☐
- EVALUATION SHEET ☐
- COMMUNITY DESCRS. ☐
- COMMUNITY COMP. LISTS ☐
- SUMMARY SPECIES LISTS ☐
- PHYSICAL FEATURES MAP ☐
- VEGETATION MAP ☐
- BIBLIOGRAPHY ☐
- PHOTOGRAPHS ☐

MAJOR INFORMATION SOURCES

Bobbette, 1975; Carlisle, Cuddy and Norman, 1972; Hanna, 1980; Hanna, 1980, Airphoto Interpretation; IBP, 1972 and 1975; MNR, 1978.

EVALUATION AND PRIORITIES

Provincially significant combination of raised beaches, foredunes and parabolic dunes (the largest and least disturbed in Ontario). Good example of dune succession from open desert (blowout) to prairie, heath, savannah and closed forest. Significant dune and prairie plant species.

April, 1981	R. Hanna

Significant dune and prairie species are supported by the Wasaga dunes, for example, dune thistle (*Cirsium hillii*), cut-leaved anemone (*Anemone multifida*), butterfly-weed (*Asclepias tuberosa*), wheat grass (*Agropyron trachycaulum*) and turkey-foot grass (*Andropogon gerardii*). A total of 12 provincially rare (Argus and White, 1977) and numerous regionally rare plants (Bobbette, 1975) inhabit this area (Hanna, 1980).

Natural fires, wind (blowout) and recently logging have ensured the survival of prairie, heath and savannah vegetation types over the past 4,000 years. Blowouts still occur on windward slopes although the process is accelerated by all-terrain vehicles such as snowmobiles. A former logging road through the dunes is part of the Wasaga Snowmobile Trail. In the foredunes, three small areas totalling 22 ha were reforested with scotch pine and jack pine.

A sizable portion of Wasaga's dune landscape is protected within the Nature Reserve zone proposed by the 1978 Recommended Master Plan. Other significant areas are under-represented or not represented at all. The following additional adjacent lands are proposed for inclusion to enhance the biological and geomorphological value of the Nature Reserve zone, increase its vegetative site type diversity and protect additional significant features. Area 1 is considered provincially significant; Areas 2, 3 and 4 of regional significance.

(1) The raised storm beaches northeast of the proposed Nature Reserve zone (Conc. XVI, Lots 8 and 9). Only 24 ha of this extensive feature have been proposed for protection in comparison to the 388 ha of dunes. Note that development plans by the Town of Wasaga Beach may constrain acquisition of this property.

(2) A portion of the former lagoon centred at UTM 778252.

(3) The silver maple floodplain along the west shore of Jack Lake (centred at UTM 793260).

(4) The woodland found on the raised beaches close to Georgian Bay, just west of Springhurst Beach (centred at UTM 725246). Several provincially rare plants grow here - ram's head ladyslipper (*Cypripedium arientinum*) and Menzie's rattlesnake plantain (*Goodyera oblongifolia*).

SITE DISTRICT 6-6: SHORELINE - Beach Ridges/Dunes

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Tiny Beach	41A/16 Also on 41A/9	705555

BRIEF DESCRIPTION

Lying 8 km north of Balm Beach on Nottawasaga Bay, Tiny Beach (250 ha) contains a series of beach ridges and intermittent swales gently rising to the Lake Nipissing shorecliff. The shoreline and some inland sections are intensely developed. The ridges are dominated with white pine-red oak-red maple and maple-beech-hemlock-white birch-cedar. The bluff is a sugar maple-beech forest.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept.17/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Thunder Bay	41A/16	750600

BRIEF DESCRIPTION

Located 10 km northwest of Penetanguishene, Thunder Bay (40 ha) consists of a series of beach ridges and intermittent swales rising inland to the Lake Nipissing shorecliff. The shoreline area contains intense cottage development along its sandy beach.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
---			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
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EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands	41A/8 Also on 41A/9	780270

BRIEF DESCRIPTION

The proposed Nature Reserve zone (412 ha) (O.M.N.R.,1978) includes part of a provincially significant raised beach and dune complex. It includes the largest and least disturbed parabolic dunes in the Great Lakes region and important prairie grassland, heath and savannah sites. Open to closed forest of red oak-white pine-red pine dominate steep dune slopes. Red oak savannah, *Ceanothus ovatus-Vaccinum-Gaylussacia baccuta*-lichen heath and *Andropogon scoparius* grassland also occur. Natural fires and sand blowouts have maintained the open sand prairie grassland and heath

SOURCES

cont'd

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED

ONTARIO NATURE RESERVES PROGRAM
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ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Wasaga Beach Provincial Park Proposed Nature Reserve Zone and adjacent lands	41A/8 Also on 41A/9	780270

BRIEF DESCRIPTION

sites. White birch-red maple beach ridges contrast with red oak-white cedar-dogwood swales in between. Wasaga Beach Snowmobile Trail dissects the area. The candidate nature reserve includes the proposed Nature Reserve zone (OMNR, 1978) and additional adjacent beach ridge area. The remaining beach ridge area occurs in the proposed Natural Environment zone (OMNR, 1978).

SOURCES Bobbette, 1975; Carlisle, Cuddy & Norman, 1972; Hanna, 1980;Hanna,1980,Airphoto Interpretation;IBP,1972,1975.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
February, 1980 Hanna & Hanna			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR. WHITNEY BLOCK. QUEEN'S PARK. TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Georgina Beach	31D/12	810420

BRIEF DESCRIPTION

Georgina Beach (300 ha) is a densely developed recreational shoreline area, however, moving inland to the foot of the ancient glacial lake bluff, the series of stand beach ridges and swarm of parabolic dunes are only sparsely developed though dissected by several concession roads. The beaches are forested with white pine-red oak while the swales in between contain large-toothed aspen-red maple-white birch. Prairie and savannah communities characterize the 25 m high sand dunes; the open forest is a mixture of red oak, white pine, red pine, large-toothed aspen, red maple with areas of closed hemlock-cedar-white birch.

Hanna, 1980, Airphoto Interpretation; IBP, 1972.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept.18/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR. WHITNEY BLOCK. QUEEN'S PARK. TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Ossossane Beach	31D/12	815460

BRIEF DESCRIPTION

Moving inland from the densely developed Nottawasaga River shoreline, Ossossane Beach (350 ha) is characterized by a series of 3-7 m high, beach ridges with intermittent swales and a wet sand plain area at the base of the Lake Nipissing shorecliff. The inland area is crossed by concession roads and contains some development. Beach ridges dominated by hemlock-sugar maple-red oak-white birch with red pine areas and cedar-balsam poplar-ash-trembling aspen-red maple-balsam fir in swales. Sand plain contains tamarack-cedar-white birch-red maple-spruce scrub swamp. Two km south of Balm Beach.

SOURCES

Hanna, 1980, Airphoto Interpretation; IBP, 1972.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 18/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
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ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
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1981

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
The Pinery	Alliston	31D/4	915860

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
Simcoe	44° 07'N	79° 52'W	ca. 725 ft.

LOCALITY 3 km south of Alliston, north of Nottawasaga River

TOWNSHIP LOTS CONCESSIONS

AREA ca. 130 acres ca. 60 ha

OWNERSHIP

ADMINISTRATION

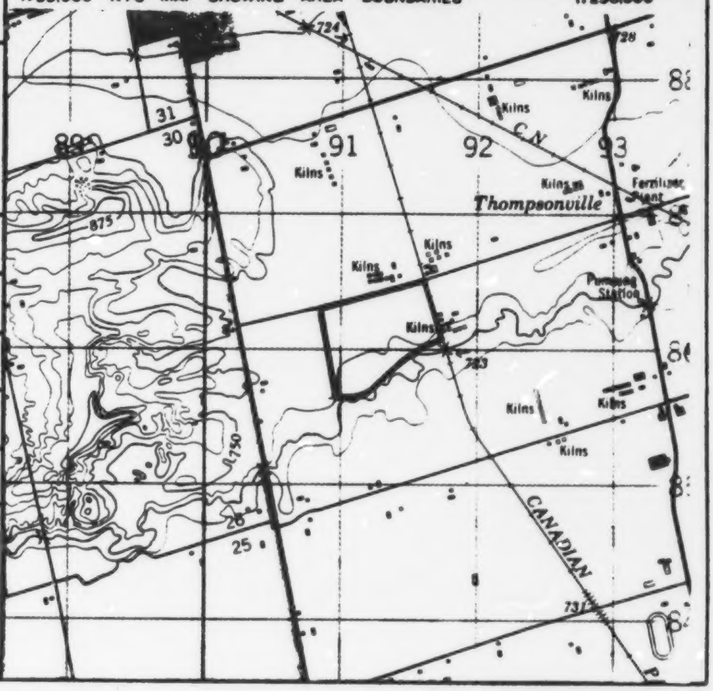
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L-1	6-6

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Huronia	Nottawasaga

AERIAL PHOTOGRAPHS BASE MAP: 441794

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	24	4405	121-122

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

The Pinery is a remnant white pine forest situated on the Alliston sand plain; this sand plain was cleared for tobacco and potato farming before the turn of the century. The forest composition consists of semi-mature white pine, white pine-sugar maple and white birch-sugar maple-white pine. The site lies 3 km south of Alliston on the north side of the Nottawasaga River.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Hanna, 1980, Airphoto Interpretation;
M.N.R., 1972, Sensitive Areas Files.

EVALUATION AND PRIORITIES

The Pinery represents one of the few remnant, white pine forests on the Alliston sand plain in Site District 6-6.

DATE COMPILED	COMPILER
April, 1981	R. Hanna

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario, M7A 1W3

SITE DISTRICT 6-6: LOWLANDS - Sand Plain

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	North of Camp Borden	31D/5	820085

BRIEF DESCRIPTION

Lowlying (200 ha) woodland north of Camp Borden contains young large-toothed aspen-red maple-hemlock-white pine forest. Site is dissected by concession road and surrounded by agricultural lands and reforestation plots.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 25/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	South of Camp Borden	31D/4	895900

BRIEF DESCRIPTION

South of Canadian Forces Base Borden lies a 400 ha relatively undisturbed and large woodlot dissected by one concession road. The main vegetation type is cedar-trembling aspen-white birch with balsam fir.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept.25/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	The Pinery	31D/4	915860

BRIEF DESCRIPTION

Remnant (60 ha) sand plain forest not cleared for tobacco or potato farming. Forest dominated by semi-mature white pine-sugar maple and white pine vegetation types. Lies 3 km south of Alliston on north side of Nottawasaga River. A candidate nature reserve.

SOURCES

Hanna, 1980, Airphoto Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept.25/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

SITE DISTRICT 6-6: RIVER VALLEY SYSTEM

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Mad River at Camp Borden	31D/5	845060

BRIEF DESCRIPTION

Undisturbed, continuous woods (600 ha) on both sides of Mad River flowing through Canadian Forces Base Borden. This is the largest lowland sand plain woodland in Site District 6-6.

SOURCES

Hanna, 1980, Airphoto Interpretation; Bobbette, 1975.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
---			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR WHITNEY BLOCK QUEEN'S PARK TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Pine River at Camp Borden	31D/5	850035

BRIEF DESCRIPTION

The Pine River corridor (450 ha) through Canadian Forces Base Borden consists of a narrow, undisturbed, continuous forest.

SOURCES

Hanna, 1980, Airphoto Interpretation; Bobbette, 1975.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
---			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Nottawasaga River	31D/4 Also on 31D/5	940985

BRIEF DESCRIPTION

This 780 ha site encompasses a narrow, 3 km stretch of the Nottawasaga River from just south of Angus to Nicolston. The main vegetation types include cedar floodplain, cedar-trembling aspen-white birch lowland and sugar maple-yellow birch-hemlock-cedar slopes. Dissected by numerous concession roads. A candidate nature reserve.

SOURCES

Hanna, 1980, Airphoto Interpretation; Bobbette, 1975.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Sept. 25/80 Hanna/Terpstra			Hanna, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

APPENDIX B: DOCUMENTED SITES OF BIOLOGICAL SIGNIFICANCE

1. SITE DISTRICT 6-6: SITES OF BIOLOGICAL SIGNIFICANCE WITH BACKGROUND INFORMATION LISTED BY 1:50,000 N.T.S. MAP SHEET

1:50,000 N.T.S. maps included in Site District 6-6, listed from west to east, north to south.

41A/16
41A/9 - only sites east of N.E.P.A.[1] have been listed
41A/8 - only sites east of N.E.P.A. have been listed
41A/1 - within N.E.P.A.; no sites listed
31D/13
31D/12
31D/5
31D/4 - only sites east of N.E.P.A. have been listed
31D/11
31D/6

LEGEND TO ABBREVIATIONS

RLSS - Site identified by regional life science study.
1. Cuddy, 1977

IBP - Site studied as part of International Biological Program.

API - Site identified by air photo analysis (Environmental Data Cards).

SA - Ontario Ministry of Natural Resources Sensitive Areas.

INT - Ontario Ministry of Natural Resources internal reports.

OTHER - Other sources of information such as published articles, government reports, personal communication.

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[1] N.E.P.A. - Niagara Escarpment Planning Area.

41A/16 CHRISTIAN ISLAND	UTM GRID REFERENCES	INFORMATION SOURCE
---	610670	API
Thunder Bay	760610	API
Christian Channel Beaches	770655	SA
---	780660	API
Macey Lake Bog	785625	API
Giant's Tomb Island	785725	SA,INT
41A/9 NOTTAWASAGA		
Craigleith Cranberry Lake	590290	IBP
Pretty River	640275	SA
Wasaga Beach Backlands Park Reserve	780290	INT
41A/8 COLLINGWOOD		
High Lime Woods	690235	IBP
Nottawasaga Sand Hills	760250	IBP
Nottawasaga Hills	770240	SA
Oakview Beach Ridges	770270	IBP
Oakview Beach Ridges (Sunnidale Hills and Bracken)	780260	IBP,SA
Sunnidale Hills	790260	SA
31D/13 PENETANGUISHENE		
Awenda Provincial Park (Methodist Point)	800650 820650	IBP,SA, INT,API
Penetang Lake	860600	API
Sucker Creek Point	880620	SA,API
---	940570	API
Matchedash Bay	040560	SA,OTHER,RLSS
31D/12 ELMVALE		
Sand Dunes	795300	SA
Ossossane Beach	805480	IBP
Georgina Beach	810420	IBP
Ossossane Beach	810485	SA
Marl Lake (Creek)	815290	SA,INT
Georgina Beach	820420	SA
Lolligan Lake	835535	SA
Tiny Marsh - Wildman Forest	840395	SA
Wye Marsh	905520	SA
Phelpston Swamp - Orr Lake	915300	SA
Wye Marsh Wildlife Centre	920530	IBP,SA
Vespra and Flos	985300	SA
Tay and Medonte	985370	SA
Copeland	025345	SA,INT
Willow Creek	090285	SA
Bass Lake Park Reserve	165385	IBP,SA,INT

31D/5 BARRIE	UTM GRID REFERENCES	INFORMATION SOURCE
New Lowell Conservation Area	815115	SA
---	845055	API
Edenvale Ravine	860250	API
Borden Plain - Southeast	895010	SA,API
Mackinnon Woods	905040	IBP
Wildlife Area	905135	SA
Minesing Swamp	910150	IBP,SA,INT,OTHER
---	910045	API
Nottawasaga River Meadows	930030	API
Utopia Conservation Area	930085	SA
Tiffin Conservation Area	960090	SA
Northeast Essa Township	980090	SA
Upper Bear Creek	990140	API
Little Lake	050200	API,RLSS
Allandale Shoal Prairie Relict	052141	API
Innisfil Shore - Slope Woods	110145	SA
---	110195	RLSS
Kempenfelt Bay Estates	130150	SA
---	171083	API
31D/4 ALLISTON		
Middle Pine River (Pine River Valley)	830990	SA,API
Everett Lowland Forests (Northwest of Everett)	860960	SA
Earl Rowe Provincial Park (Park Fishway)	875895	IBP,SA
Adjala Swamp	910820	SA
The Pinery	915860	SA
Alliston Ravine	945915	API
Randall Swamp (Disappearing Swamp)	010880	SA
Innisfil and West Gwillimbury	065960	SA
Cookstown Swamp	090970	SA
31D/11 ORILLIA		
Longman Swamp	200385	API
Simcoe College Forest	235375	API,RLSS
Shingle Bay Wetlands (Smith Bay)	280390	API,RLSS
Couchiching Park Reserve	293524	API
Mara Provincial Park	300383	RLSS
McRae Point Forest	327370	API
St. John Creek Swamp	330520	API
Mud Lake	345465	SA
McGinnis Point Marsh	370360	IBP,SA,RLSS
Brechin Swamp	420350	API,SA,RLSS
31D/6 BEAVERTON		
Georgina Island	360150	SA
Virginia Relict Forest	367082	API,RLSS
Duclos Point Park Reserve	400100	INT
Canal Wetland	465265	API,SA,RLSS

2. SITE DISTRICT 6-6: SITES OF BIOLOGICAL SIGNIFICANCE LISTED BY PHYSIOGRAPHIC REGION (Chapman and Putnam, 1973)

Physiographic Regions within 6-6:

- Simcoe Lowlands
- Simcoe Uplands
- Peterborough Drumlin Field

SIMCOE LOWLANDS

41A/9 NOTTAWASAGA	UTM GRID REFERENCES	INFORMATION SOURCE
Craigleith Cranberry Lake	590290	IBP
Pretty River	640275	SA
Wasaga Beach Backlands Park Reserve	780290	INT
41A/8 COLLINGWOOD		
High Lime Woods	690235	IBP
Nottawasaga Sand Hills	760250	IBP
Nottawasaga Hills	770240	SA
Oakview Beach Ridges	770270	IBP
Oakview Beach Ridges (Sunnidale Hills and Bracken)	780260	IBP,SA
Sunnidale Hills	790260	SA
31D/12 ELMVALE		
Sand Dunes	795300	SA
Ossossane Beach	805480	IBP
Georgina Beach	810420	IBP
Ossossane Beach	810485	SA
Marl Lake (Creek)	815290	SA,INT
Georgina Beach	820420	SA
Tiny Marsh - Wildman Forest	840395	SA
Phelpston Swamp - Orr Lake	915300	SA
Bass Lake Park Reserve	165385	IBP,SA,INT
31D/5 BARRIE		
New Lowell Conservation Area	815115	SA
---	845055	API
Edenvale Ravine	860250	API
Borden Plain - Southeast	895010	SA,API
Mackinnon Woods	905040	IBP
Wildlife Area	905135	SA
Minesing Swamp	910150	IBP,SA,INT,OTHER
---	910045	API
Nottawasaga River Meadows	930030	API
Utopia Conservation Area	930085	SA
Tiffin Conservation Area	960090	SA
Northeast Essa Township	980090	SA
Little Lake	050200	API,RLSS
Allandale Shoal Prairie Relict	052141	API
Innisfil Shore - Slope Woods	110145	SA
Kempenfelt Bay Estates	130150	SA

31D/4 ALLISTON	UTM GRID REFERENCES	INFORMATION SOURCE
Middle Pine River (Pine River Valley)	830990	SA,API
Everett Lowland Forests (Northwest of Everett)	860960	SA
Earl Rowe Provincial Park (Park Fishway)	875895	IBP,SA
Adjala Swamp	910820	SA
The Pinery	915860	SA
Alliston Ravine	945915	API
Randall Swamp (Disappearing Swamp)	010880	SA
Cookstown Swamp	090970	SA

31D/11 ORILLIA		
Simcoe College Forest	235375	API,RLSS
Shingle Bay Wetlands, (Smith Bay)	280390	API,RLSS
Couchiching Park Reserve	293524	API
Mara Provincial Park	300383	RLSS
McRae Point Forest	327370	API
St. John Creek Swamp	330520	API
Mud Lake	345465	SA
McGinnis Point Marsh	370360	IBP,SA,RLSS
Brechin Swamp	420350	SA,RLSS

31D/6 BEAVERTON		
Georgina Island	360150	SA
Virginia Relict Forest	367082	API,RLSS
Duclos Point Park Reserve	400100	INT
Canal Wetland	465265	SA

SIMCOE UPLANDS

41A/16 CHRISTIAN ISLAND	UTM GRID REFERENCES	INFORMATION SOURCE
---	610670	API
Thunder Bay	760610	API
Christian Channel Beaches	770655	SA
---	780660	API
Macey Lake Bog	785625	API
Giant's Tomb Island	785725	SA,INT

31D/13 PENETANGUISHENE		
Awenda Provincial Park (Methodist Point)	800650 820650	IBP,SA INT,API
Penetang Lake	860600	API
Sucker Creek Point	880620	SA,API
---	940570	API
Matchedash Bay	040560	SA,OTHER,RLSS

31D/12 ELMVALE	UTM GRID REFERENCES	INFORMATION SOURCE
Lolligan Lake	835535	SA
Wye Marsh	905520	SA
Phelpston Swamp - Orr Lake	915300	SA
Wye Marsh Wildlife Centre	920530	IBP,SA
Vespra and Flos	985300	SA
Tay and Medonte	985370	SA
Copeland	025345	SA,INT
Willow Creek	090285	SA
31D/5 BARRIE		
Upper Bear Creek	990140	API
---	110195	RLSS
31D/11 ORILLIA		
Longman Swamp	200385	API

PETERBOROUGH DRUMLIN FIELD

31D/4 ALLISTON	UTM GRID REFERENCES	INFORMATION SOURCE
Innisfil and West Gwillimbury	065960	SA

APPENDIX C: POLICY FOR AREAS OF NATURAL AND SCIENTIFIC INTEREST

Areas of Natural and Scientific Interest (ANSI) are areas of land and water containing natural landscapes or features which have been identified as having values related to protection, natural heritage appreciation, scientific study or education.

ANSIs may vary in level of significance. The most significant of these may contribute to the achievement of the Ministry's protection objective.

Where ANSIs occur on public lands managed by the Ministry, it will ensure that the land uses and activities which occur, provide for the protection of identified values.

On private lands, the Ministry will, through cooperation with others, attempt to ensure that landowners are aware of significant features on their properties and seek the owners' cooperation in protecting such features. The identification of areas of natural and scientific interest on private land does not indicate an intent of the Ministry to acquire this land.

ANSIs encourage the protection of additional areas not regulated as provincial parks and provide a focus for both the public and private sectors to contribute to the protection of Ontario's natural heritage.

The policy for Areas of Natural and Scientific Interest is taken from *Backgrounder: Land Use Guidelines*. June, 1983.

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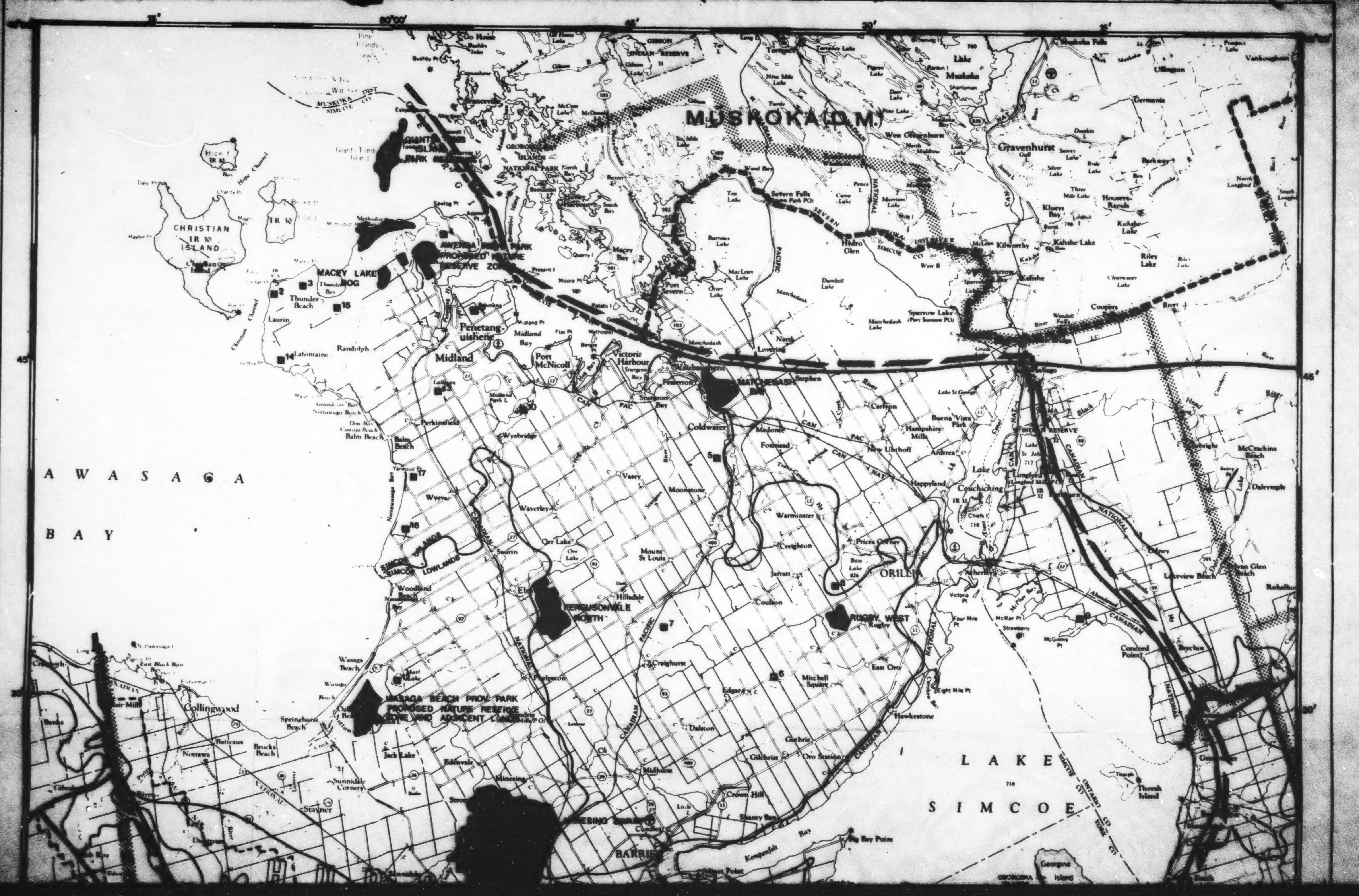
Penetanguishene	31D/13	1969
Dundalk	41A/1	1970
Collingwood	41A/8	1970
Nottawasaga	41A/9	1970
Christian Island	41A/16	1970

Ontario Department of Mines and Northern Affairs, Ontario Research Foundation, 1972. Maps to Accompany "The Physiography of Southern Ontario" by L. J. Chapman and D. F. Putnam, 1:253,440 Map Series:

Physiography of the South Central Portion of Southern Ontario Map #2226.

Physiography of the Georgian Bay-Ottawa Valley Map #2228.

Ontario Ministry of Natural Resources, Airphoto Library, 1971 and 1978. 1:15,840 and 1:10,000.


80°00'
45'
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30'
MUSKOKA (D.M.)
MUSKOKA DIST
SIMCOE CO
GIANTS TOMB ISLAND PARK
GEORGIAN BAY ISLANDS NATIONAL PARK
AWENDA PROV. PARK PROPOSED NATURE RESERVE ZONE
MACEY LAKE BOG
MATCHEDASH BOG
FERGUSONVALE NORTH
RUGBY WEST
SIMCOE UPLANDS
SIMCOE LOWLANDS
WASAGA BEACH PROV. PARK PROPOSED NATURE RESERVE ZONE AND ADJACENT LANDS
MINESING SWAMP
CHRISTIAN ISLAND
IR 30
Hope I.
Beckwith I.
Giants Tomb Island
GIBSON INDIAN RESERVE
INDIAN RESERVE
1
2
3
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6
7
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9
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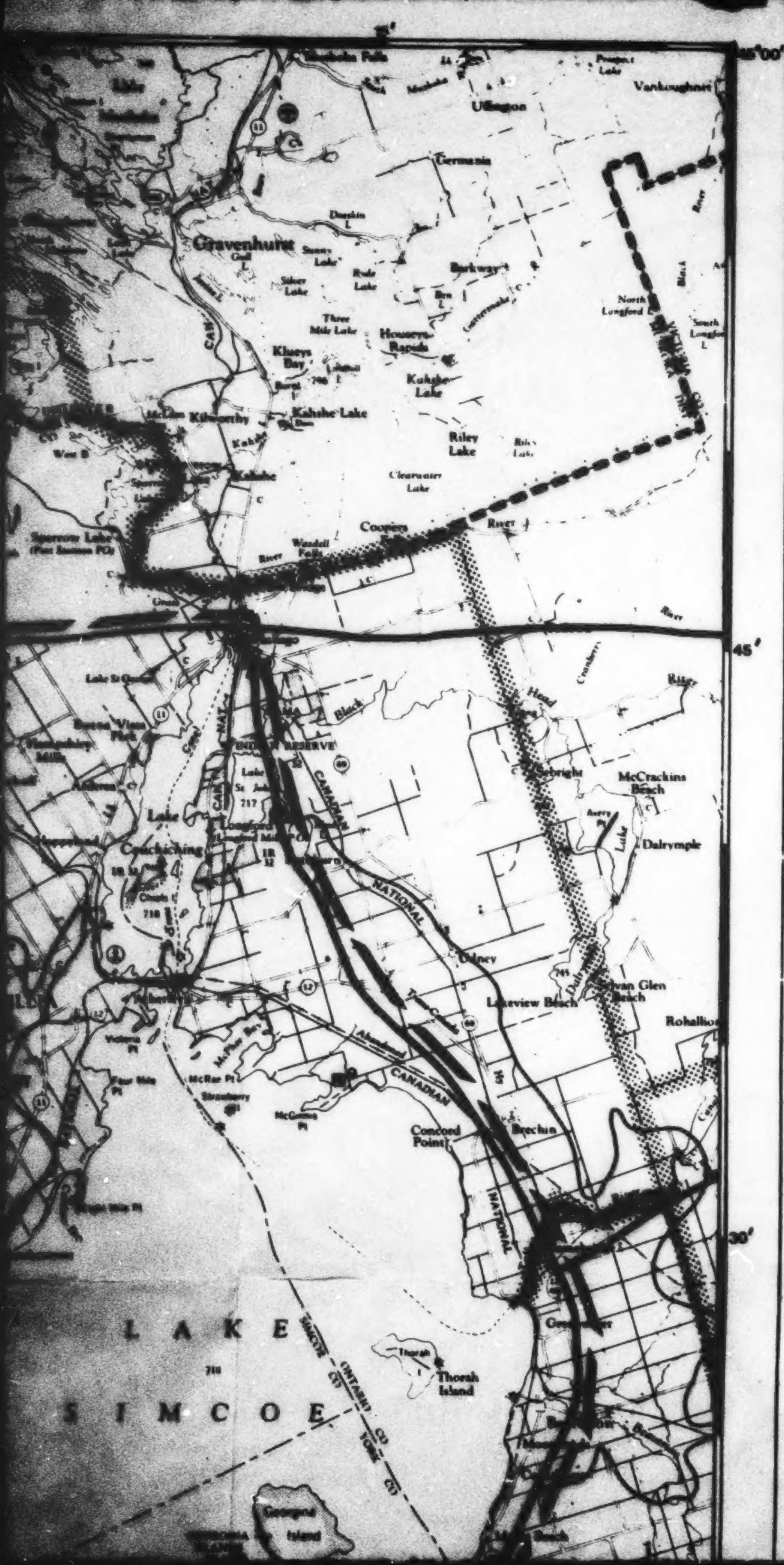
11
13
14
15
16
17
Thunder Beach
Laurin
Lafontaine
Randolph
Penetanguishene
Midland
Midland Bay
Port McNicoll
Victoria Harbour
Sturgeon Bay
Waubaushene
Port Severn
Honey Harbour
Matchedash
Coldwater
Waverley
Wyebridge
Perkinsfield
Balm Beach
Wyevale
Orr Lake
Mount St Louis
Moonstone
Vasey
Warminster
Creighton
Prices Corner
Orillia
Atherley
Lake Couchiching
Longford
Washago
Sparrow Lake
Severn Falls
Gravenhurst
Lake Muskoka
Kilworthy
Kahshe Lake
Hydro Glen
Coopers Falls
Germania
Barkway
Uffington
Elmvale
Hillsdale
Craighurst
Phelpston
Edgar
Dalston
Guthrie
Oro Station
Mitchell Square
East Oro
Hawkestone
Coulson
Jarratt
Rugby
Midhurst
Crown Hill
Shanty Bay
Barrie
Kempenfelt Bay
Big Bay Point
Minesing
Edenvale
Jack Lake
Sunnidale Corners
Stayner
Nottawa
Batteaux
Brocks Beach
Collingwood
Craigleith
Wasaga Beach
Woodland Beach
Springhurst Beach
Nottawasaga Bay
Sunnidale
Thorah Island
Georgina Island
Brechin
Concord Point
Lakeview Beach
Sylvan Glen Beach
Dalrymple
McCrackins Beach
Lake St George
Buena Vista Park
Hampshire Mills
Carthew
Fountain
New Uhthoff
Ardtrea
Happyland
Stephen
Lovering
Victoria Pt
Four Mile Pt
McRae Pt
Strawberry I
Eight Mile Pt
Lake Simcoe
SEVERN RIVER
CANADIAN NATIONAL
CANADIAN PACIFIC
AWASAGA BAY
LAKE SIMCOE
SIMCOE CO
ONTARIO CO
YORK CO



CANDIDATE NATURE RESERVES AND SIGNIFICANT SITES IN SITE DISTRICT 6-6, EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

Candidate Nature Reserves

UPLANDS
SAND PLAIN/TILL PLAIN WITH SHORECLIFF
- Fergusonvale North (31D/12 935345)

KAME HILLS
- Rugby West (31D/12 170350)

WETLANDS
SWAMP
- Minesing Swamp (31D/5 900150)

MARSH
- Matchedash Bay (31D/12 060545)

BOG/LAKE
- Macey Lake Bog (41A/16 785625)

LOWLANDS
SAND PLAIN
- The Pinery (31D/4 915860)

RIVER VALLEY SYSTEM
- Nottawasaga River (31D/4 940985)

Provincial Park Holdings with Nature Reserve Potential

UPLANDS
SAND PLAIN/TILL PLAIN WITH SHORECLIFF
- Giants Tomb Island Park Reserve (41A/16 785725)
- Awenda Provincial Park: Proposed Nature Reserve Zones (31D/13 820650)

WETLANDS
SWAMP
- Duclos [illegible]t Park Reserve and adjacent lands (31D/16 400100)

SHORELINE
BEACH RIDGES/DUNES
- Wasaga Beach Provincial Park: Proposed Nature Reserve Zone and adjacent lands (41A/8 780270)

Significant Sites

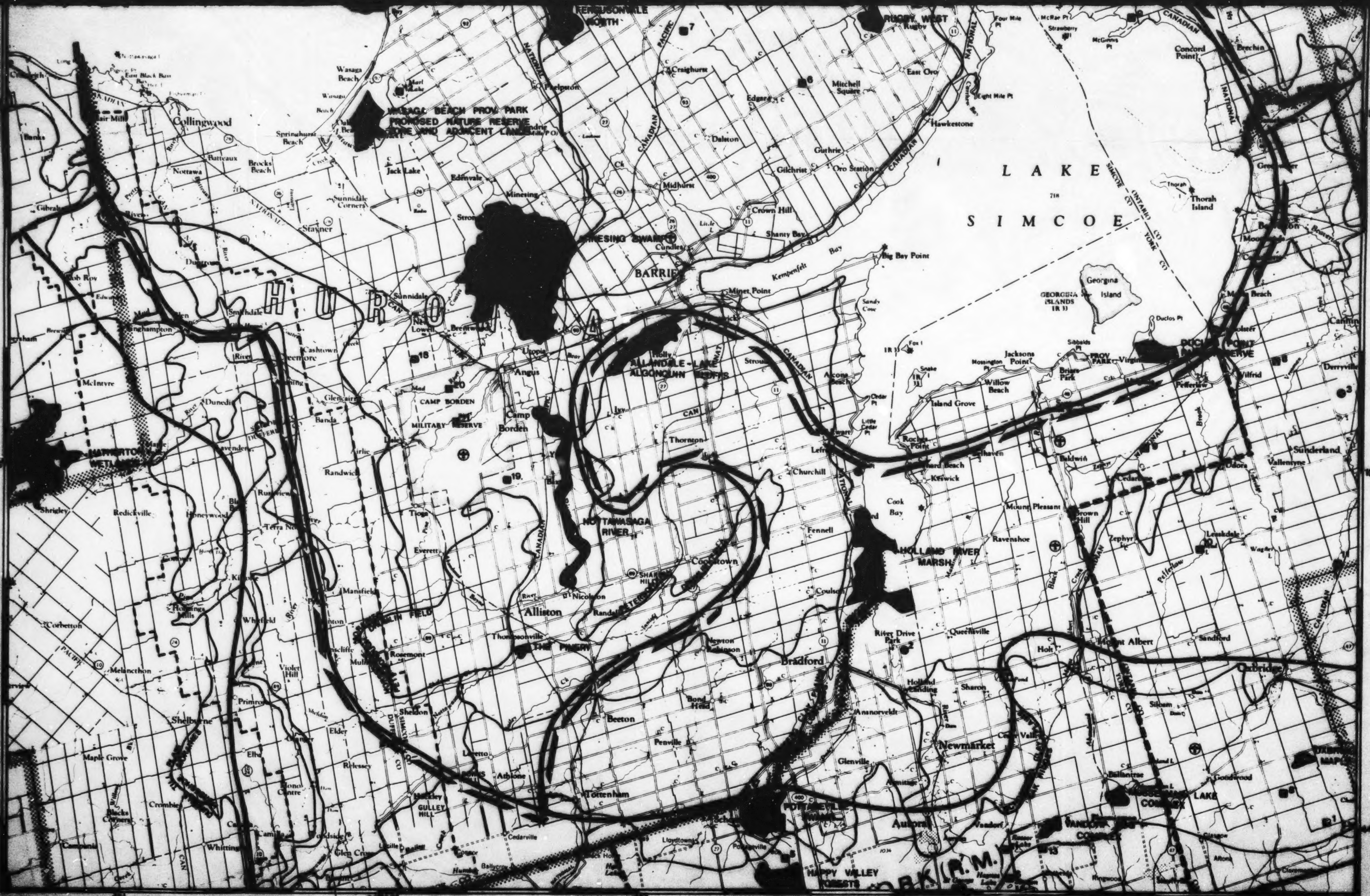
UPLANDS
SAND PLAIN/TILL PLAIN WITH SHORECLIFF
1. Christian Islands Indian Reserve (41A/16 630630)
2. Christian Channel (41A/16 695610)
3. Thunder Beach West (41A/16 720620)
4. East of Awenda (31D/13 840660)
5. Moonstone Northeast (31D/12 065480)

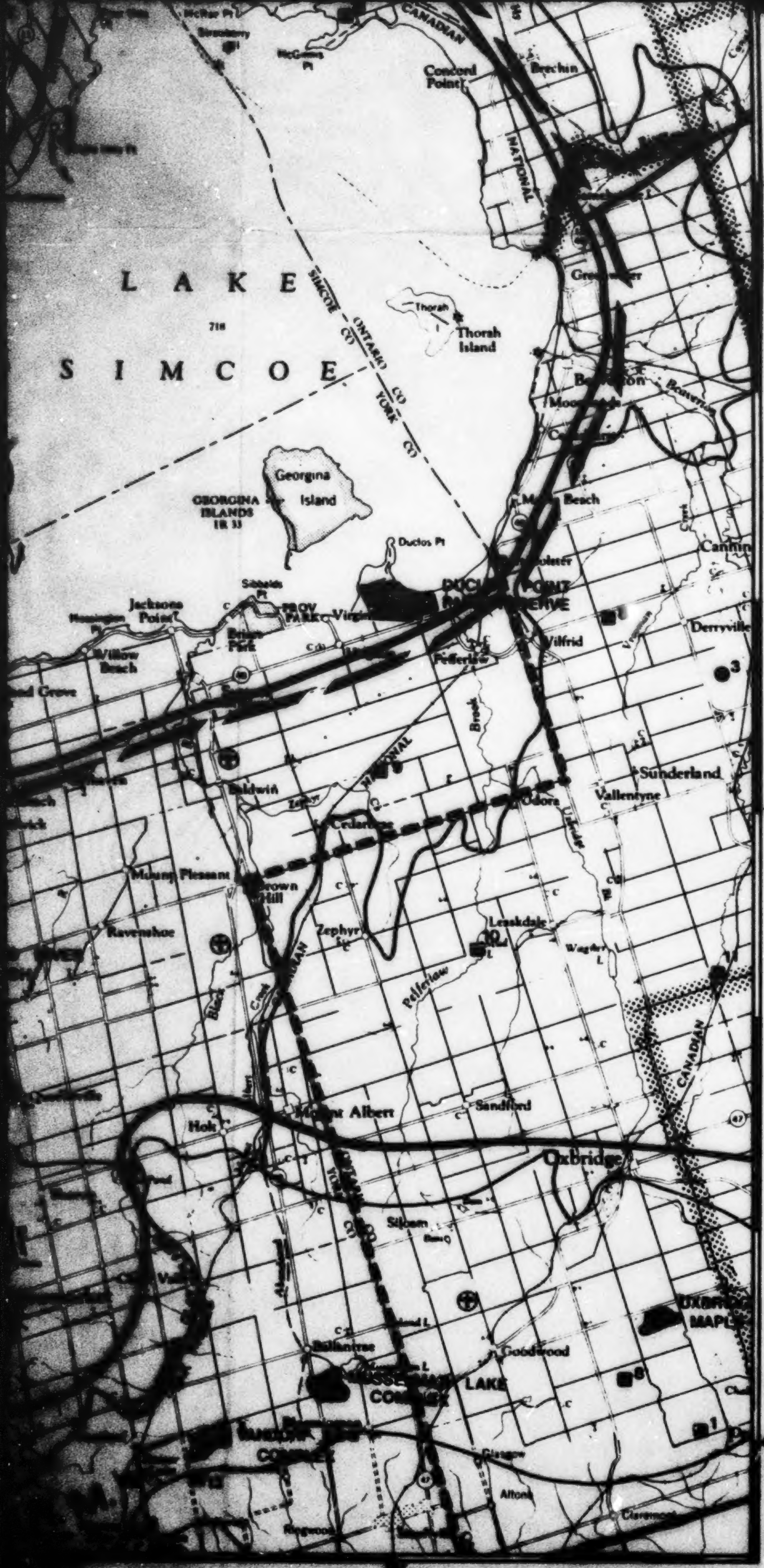
KAME HILLS
6. Martin Farm South (31D/12 115305)

WETLANDS
SWAMP
7. Copeland Forest Resource Management Area (31D/12 025345)
8. Bass Lake Park Reserve and adjacent lands (31D/12 170380)
9. McGinnis Point (31D/11 370360)

MARSH
10. Wye Marsh (31D/12 905520)

BOG/LAKE
11. Penetang Lake (31D/13 860600)
12. Marl Lake (31D/12 805295)
13. Lolligan Lake (31D/12 835535)


FERGUSONVALE NORTH
RUGBY WEST
WASAGA BEACH PROV PARK PROPOSED NATURE RESERVE ZONE AND ADJACENT LANDS
MINESING SWAMPS
LAKE SIMCOE
HURONIA
ALLANDALE - LAKE ALGONQUIN BEACHES
CAMP BORDEN MILITARY RESERVE
NOTTAWASAGA RIVER
HOLLAND RIVER MARSH
DUCLOS POINT NATURE RESERVE
MELANCTHON WETLANDS
THE PINERY
GULLEY HILL
HAPPY VALLEY FORESTS
YORK (R.M.)
VANDORF COMPLEX
MUSSELMAN LAKE COMPLEX
Collingwood
Wasaga Beach
Stayner
Barrie
Kempenfelt Bay
Big Bay Point
Georgina Island
Angus
Alliston
Beeton
Tottenham
Bradford
Newmarket
Aurora
Keswick
Sutton
Uxbridge
Shelburne
Hawkestone
Oro Station
Midhurst
Cookstown
Thornton
Churchill
Sunderland
Brechin
Thorah Island
Mount Albert
Queensville
Sharon
Holland Landing
Mono Centre
Orangeville
Lloydtown
Schomberg
Ballantrae
Goodwood
Stouffville
Jackson Point
Pefferlaw
Zephyr
Cannington
Beaverton
Virginia
Dunedin
Creemore
Mansfield
Everett
Rosemont
Nicolston
Randall
Sharon Hill
Bond Head
Glenville
Newton Robinson
Penville
Loretto
Cedarville
Primrose
Honeywood
Dundalk
Singhampton
Duntroon
Nottawa
Stroud
Lefroy
Fennell
Coulson
Ravenshoe
Baldwin
Cook Bay
Mount Pleasant
Brown Hill
Holt
Sandford
Leaskdale
Udora
Vallentyne
Egypt
Cedarbrae



SAND PLAIN/TILL PLAIN WITH SHORECLIFF

1. Christian Islands Indian Reserve (41A/16 630630)
2. Christian Channel (41A/16 695610)
3. Thunder Beach West (41A/16 720620)
4. East of Awenda (31D/13 840660)
5. Moonstone Northeast (31D/12 065480)

KAME HILLS

6. Martin Farm South (31D/12 115305)

WETLANDS

SWAMP

7. Copeland Forest Resource Management Area (31D/12 025345)
8. Bass Lake Park Reserve and adjacent lands (31D/12 170380)
9. McGinnis Point (31D/11 370360)

MARSH

10. Wye Marsh (31D/12 905520)

BOG/LAKE

11. Penetang Lake (31D/13 860600)
12. Marl Lake (31D/12 805295)
13. Lolligan Lake (31D/12 835535)

SHORELINE

BEACH RIDGES/DUNES

14. Tiny Beach (41A/16 705555)
15. Thunder Bay (41A/16 750600)
16. Georgina Beach (31D/12 810420)
17. Ossossane Beach (31D/12 815460)

LOWLANDS

SAND PLAIN

18. North of Camp Borden (31D/5 820085)
19. South of Camp Borden (31D/4 895900)

RIVER VALLEY SYSTEM

20. Mad River at Camp Borden (31D/5 845060)
21. Pine River at Camp Borden (31D/5 855035; 31D/4 830990)

▬ ▬ Site District boundary

— Physiographic Region boundary

▬ Candidate Nature Reserve

■ Significant Site

------ Niagara Escarpment Planning Area

Drawn by P. Terpstra

Date February 1982

The name "Candidate Nature Reserve" was changed to "Area of Natural and Scientific Interest (ANSI)" in 1983.

Kilometres Scale 1:250,000
5 0 5 10 15

Sources of Information

Physiographic region boundaries used on this map follow those of Chapman and Putnam, 1966. Site District boundaries presented here were derived from an unpublished small scale map provided by Forest Site Research. Boundaries were extrapolated and are thus only approximations of Site District boundaries. Please refer to the Site District 6-6 report (Areas of Natural and Scientific Interest in Site District 6-6: A Review and Assessment of Significant Natural Areas in Site District 6-6 by R. Hanna, 1984) for further information.